

---

# Globally Important Agricultural Heritage Systems (GIAHS)

## *A Heritage for the Future*

*experiences on dynamic conservation of traditional agricultural systems*

*Proceedings of the International Forum*

Organised by **Food and Agriculture Organization of the United Nations** in collaboration with **Wageningen International (WI)**

**FAO, Rome, Italy, 24-26 October 2006**



The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. The views expressed in this publication are those of the author(s) and do not necessarily reflect the views of the Food and Agriculture Organization of the United Nations.

The conclusions given in this report are considered appropriate at the time of its preparation. They may be modified in the light of further knowledge gained at subsequent stages of the project. All rights reserved. Reproduction and dissemination of material in this information product for educational or other non commercial purposes are authorized without any prior written permission from the copyright holders provided the source is fully acknowledged. Reproduction of material in this information product for resale or other commercial purposes is prohibited without written permission of the copyright holders.

**Applications for such permission should be addressed to:**

Chief  
Electronic Publishing Policy and Support Branch  
Information Division  
FAO  
Viale delle Terme di Caracalla  
00100 Rome, Italy

**or by e-mail to:**

[copyright@fao.org](mailto:copyright@fao.org)

**Copies of FAO publications can be requested from:**

Sales and Marketing Group  
Information Division  
Food and Agriculture Organization of the United Nations  
Viale delle Terme di Caracalla  
00153 Rome, Italy

E-mail: [publications-sales@fao.org](mailto:publications-sales@fao.org)

Fax: (+39) 06 57053360

Web site: [www.fao.org/icalog/inter-e.htm](http://www.fao.org/icalog/inter-e.htm)

© FAO(2007)

# Table of contents

## 7 Acronyms

## 9 Foreword

*Parviz Koohafkan, GIAHS Coordinator, FAO, Rome, Italy*

## 11 Executive Summary

## 15 Opening session

### International context of Agricultural Heritage Systems

## 16 Welcome address

*Peter Kenmore, Chair FAO Interdepartmental Working Group on Biodiversity, Rome, Italy*

## 17 Keynote address

### Application of Quantum physics for a holistic approach to agricultural heritage system

*Henk Kieft Chair, ETC Netherlands*

## 19 Session 2

### Mainstreaming GIAHS at national and international levels

## 20 An examination of GIAHS in existing multilateral instruments

*Stuart Harrop, Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, U.K.*

## 21 The experience of the Commission on Plant Genetic Resources for Food and Agriculture (CGRFA)

*José Esquinas-Alcazar, Secretary of the CGRFA, Agriculture Department, FAO, Rome, Italy*

## 22 The experience of UNESCO World Heritage Commission and Man and Biosphere Reserve Programme

*Philippe Pypaert, Head a.i. Science and Environment, Regional Bureau for Science and Culture in Europe UNESCO-UVO*

## 23 GIAHS Philippines: Governance and Local Empowerment in the Environment and Natural Resources Sector

*Analiza Rebuelta-Teh, GEF Operational Focal Point and Assistant Secretary, DENR, Quezon City, Philippines*

- 25 Session 3**  
**Building Innovative Partnerships and Resources Mobilisation**
- 26 GEF Small Grant Programme**  
*Nick Remple, UNDP/GEF/SGP Global Manager (Programmes)*
- 27 The Christensen Fund**  
*Wolde Gossa Tadesse, Programme Officer, The African Rift Valley (Ethiopia)*  
*The Christensen Fund, Palo Alto, CA, USA*
- 28 GIAHS and Traditional Agricultural Community**  
*Maharaj Muthoo, Secretary General, Roman Forum, Rome, Italy*
- 29 NGO/IPGRI/WI Programme on the Oases of the Maghreb**  
*Noureddine Nasr, IPGRI, Regional Coordinator, Tunisia*
- 30 UN Permanent Forum on Indigenous Issues**  
*Victoria Tauli-Corpuz, Chairperson, UN Permanent Forum on Indigenous Issues*
- 31 Session 4**  
**Empowering Local Communities through GIAHS**
- 32 Institutional mechanism in participating countries for dynamic conservation of GIAHS**  
*Frank van Schoubroeck, Luohui Liang and Mary Jane de la Cruz*
- 33 Recent Developments in Intellectual Property Rights and Indigenous Knowledge**  
*Shakeel Bhatti, Head, Genetic Resources, Traditional Knowledge and Biotechnology Section, WIPO, Geneva, Switzerland*
- 34 GIAHS Conservation Framework in China**  
*Qingwen Min, Head, Professor, Center for Natural and Cultural Heritage, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China*
- 35 GIAHS in Chile: National Governance and Local Empowerment Structure**  
*Carlos Venegas, Regional Director, Centre for Education and Technology (CET), Chile*
- 37 Conclusions of discussion group sessions**
- 38 Group 1 Scientific underpinning of Agricultural Heritage Concept**
- 38 Group 2 Review of pilot country experiences in GIAHS dynamic conservation**

39	<b>Group 3 Creation of a globally, nationally and locally recognized “World Agricultural Heritage Category”</b>
40	<b>Group 4 Organization of a multi-stakeholder management structure for GIAHS programme implementation</b>
41	<b>Final session</b>
43	<b>Follow up</b> <b>Notes of the Forum</b>
43	<b>Review of the GIAHS concept, policy and priorities</b>
43	<b>The legal framework</b>
43	<b>The management structure of the GIAHS</b>
43	<b>The associated research activities within GIAHS</b> <b>Socio-economic viability of GIAHS</b>
44	<b>Socio-economic viability of GIAHS</b>
44	<b>GIAHS support network development</b>
45	<b>Background Papers</b> <b>Conservation and Adaptive Management of Globally Important Agricultural Heritage Systems (GIAHS)</b>
46	<b>The GIAHS Initiative: from concept to implementation</b> <i>Parviz Koohafkan</i>
55	<b>A Scientific Conceptual Framework and Strategic Principles for the GIAHS Programme from a Social-Ecological Systems Perspective</b> <i>Patricia Howard</i>
59	<b>GIAHS and Farmers Innovation</b> <i>Miguel A. Altieri</i>
63	<b>Globally Important Agricultural Heritage Systems</b> <i>An examination of their context in existing multilateral instruments</i> <i>Stuart R. Harrop</i>
71	<b>Local empowerment and poverty alleviation in ‘Globally Important Agricultural Heritage Systems’</b> <i>Arend-Jan van Bodegom and Frank van Schoubroeck</i>
81	<b>Commission on Genetic Resources for Food and Agriculture (CGRFA)</b> <i>José Esquinas-Alcázar</i>

- 85 **Philippines: Governance and Local Empowerment in the Environment and Natural Resources Sector**  
*Analiza Rebuelta-Teh*
- 93 **China's GIAHS Conservation: National Framework**  
*Qingwen Min and Sun Yehong*
- 103 **Institutional Mechanism in Participating Countries for Dynamic Conservation of GIAHS**  
*Frank van Schoubroeck, Luohui Liang and Mary Jane de la Cruz*
- 113 **Isla de Chiloé, Chile Sitios Ingeniosos de Patrimonio Agrícola Mundial, SIPAM**  
*Carlos Venegas*
- 121 **China's GIAHS Conservation: Practices and Experiences**  
*Taking Traditional Rice-fish Agriculture as an Example*  
*Qingwen Min*
- 125 **Ifugao Rice Terraces: Agricultural Heritage Systems dynamic conservation and practices**  
*Samuel Peñafiel*
- 131 **Annex 1**  
**Agenda of the Forum**
- 135 **Annex 2**  
**Agenda Item for the CGRFA**
- 137 **Annex 3**  
**List of Participants**

## Acronyms

---

<b>CAS</b> – Chinese Academy of Sciences	
<b>CBD</b> – Convention of Biological Diversity	
<b>CBO</b> – Community Based Organization	
<b>CET</b> - Centro de Educación y Tecnología (Chile)	
<b>DAC-OECD</b> – Development Assistance Committee - Organisation for Economic Co-operation and Development	
<b>CGIAR</b> - Consultative Group on International Agricultural Research	
<b>CGRFA</b> - Commission on Genetic Resources for Food and Agriculture	
<b>CPS</b> – Country Programme Strategy	
<b>CSO</b> – Civil Society Organization	
<b>DENR</b> - Department of Environment and Natural Resources (Philippines)	
<b>DPSIR</b> Framework – <i>Driving Forces-Pressures-State- Impacts-Response</i> general framework	
<b>FAO</b> – Food and Agriculture Organization	
<b>GEF</b> - Global Environmental Facility	
<b>GIAHS</b> – Globally Important Agricultural Heritage Systems	
<b>ICCROM</b> - International Centre for the Study of the Preservation and Restoration of Cultural Property	
<b>IFAD</b> - International Fund for Agricultural Development	
<b>IPGRI</b> – International Plant Genetic Resources Institute (now called Bioversity International)	
<b>ISNAR</b> - International Service for National Agricultural Research	
<b>ITPGRFA</b> - International Treaty on Plant Genetic Resources for Food and Agriculture	
<b>IUCN</b> - International Union for the Conservation of Nature and Natural Resources	
<b>MAB BRs</b> – Man and Biosphere Programme Biosphere Reserves	
<b>MDG</b> – Millennium Development Goal	
<b>MOA</b> - Ministry of Agriculture (China)	
<b>NGO</b> – Non Governmental organization	
<b>RAF</b> – Resources Allocation Framework (of GEF)	
<b>SGP</b> — Small Grants Programme	
<b>SIPAM</b> - Sitios Ingeniosos de Patrimonio Agrícola Mundial	
<b>TCF</b> – The Christensen Fund	
<b>TK</b> – Traditional knowledge	
<b>UNCCD</b> – United Nations Convention to Combat Desertification	
<b>UNDP</b> – United Nations Development Programme	
<b>UNESCO</b> - United Nations Educational, Scientific and Cultural Organization	
<b>UNPFII</b> - UN Permanent Forum on Indigenous Issues	
<b>UNU/PLEC</b> - United Nations University / People, Land Management and Environmental Change	
<b>WHC</b> – World Heritage Convention	
<b>WI</b> – Wageningen International (The Netherlands)	
<b>WIPO</b> – World Intellectual Property Organization	

*“GIAHS is not about the past  
but is about the future”*

*- Parviz Koohafkan*



## Foreword

---

Worldwide, specific agricultural systems and landscapes have been created, shaped and maintained by generations of farmers and herders based on diverse natural resources using locally adapted management practices. Building on local knowledge and experience, these ingenious agricultural systems reflect the evolution of humankind, the diversity of its knowledge and its profound relationship with nature.

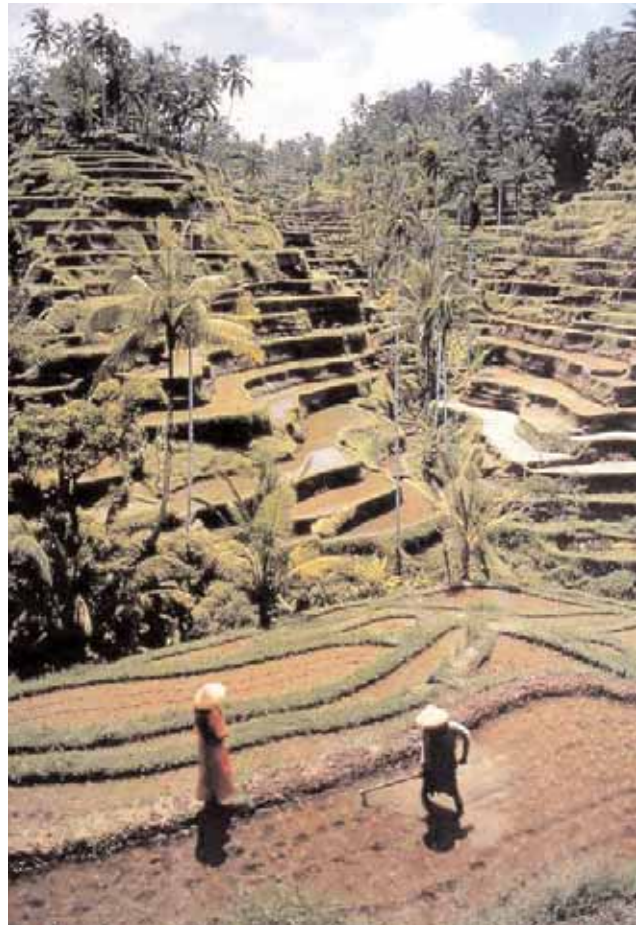
These agricultural systems have resulted not only in outstanding landscapes, maintenance and adaptation of globally significant agricultural biodiversity, resilient ecosystems and cultural diversity, but



above all in the sustained provision of multiple goods and services, food and livelihood security and quality of life. At the occasion of World Summit on Sustainable Development (WSSD, Johannesburg, 2002), FAO developed and presented a Partnership Initiative on conservation and adaptive management of Globally Important Agricultural Heritage Systems (GIAHS) with the support of Global Environment Facility (GEF) and in collaboration with UNDP, UNESCO, CBD, UNU, IFAD, IUCN, Bioversity International and country partners, aiming for the recognition, conservation and sustainable management of such agricultural systems and their associated landscapes, biodiversity, knowledge systems and cultures.

Over the four years of initial phase of this programme, a call for proposals and inventory of agricultural heritage systems was launched, and two interna-

tional steering committee meetings cum workshops and several focus-group discussions were conducted in FAO-Rome, to formulate and conceptualise the GIAHS programme, prepare selection criteria, and particularly the assessment of existing agricultural systems and selection of pilot systems. During this project development phases, some two hundred systems were identified in different parts of the world including in OECD countries that qualify as Globally Important Agricultural Heritage System. To kick-off the global programme implementation phases with concrete actions at national and local levels, country missions and stakeholder forums were organised in several countries and five pilot systems were selected: Andean agriculture of Peru, Chiloe agriculture of Chile, Ifugao rice terraces of the Philippines, rice-fish agriculture of China and



the oases of the Maghreb in Algeria, Morocco and Tunisia. The project development phase is close to the final stages and in 2007 the full scale project implementation shall start. The International Forum on Globally Important Agricultural Heritage Systems (GIAHS) was convened in Rome from 24-26 October to take stock of the findings of the project development and give direction for the full scale global GIAHS programme. The Forum brought together all partner government organizations, the implementing agency and co-funding institutions, UN agencies, academics and other international organizations as well as civil societies organizations and biodiversity conservation advocacy groups.

The Forum discussed experiences of pilot countries in implementing initial phase of the programme and provided participants a full view of the GIAHS programme and further elucidated the overall conceptual approach, the scientific underwriting of agricultural heritage as well requirements for enabling policy instruments for recognition and safeguarding globally important agricultural heritage systems. A number of issues pertaining to the underpinning of the scientific concept of agricultural heritage, management structure at all levels and policy frameworks in search of recognition and deeper understanding of GIAHS were discussed. Several recommendations from the participants are listed which are annexed to the Forum proceedings, including other background papers (full paper and PowerPoint presentation materials are contained in the attached CD-Rom). Likewise, the notes of the Forum observed by GIAHS management team are provided at the end of the discussion of the proceedings. FAO wish to thank all the participating government organizations (Chile, China, Peru, Philippines, Algeria, Morocco and Tunisia) for their cooperation during the preparatory phase as well as other co-funding institutions, all the partner organizations from the UN systems and other international organizations and civil society partners who have contributed to GIAHS programme. Furthermore, FAO would like to thank these organizations for making this important Forum a success.

In particular, we wish to express our gratitude to the Dutch Ministry of Agriculture and Fisheries, which through Wageningen International supported financially the conference and provided valuable inputs, particularly regarding the practice of GIAHS dynamic conservation. FAO would also like to thank the Christensen Fund for the grant to prepare the scientific underwriting of the agricultural heritage concept. FAO looks forward to continuing the work with partner governments and other international, national and local partners to address dynamic conservation of GIAHS - our common heritage for the future.



Parviz Koohafkan,  
GIAHS Coordinator

# Executive Summary

---

## *Background and objectives of the Forum*

In 2002, FAO initiated a wide programme for the conservation and adaptive management of Globally Important Agricultural Heritage Systems (GIAHS). During the preparatory phase, several meetings were convened to formulate and give guidance to an umbrella project supported by UNDP/GEF in close collaboration with UNESCO, UNU, IPGRI, ICCROM, interested governments and other partners. As part of this project, pilot systems were identified in Chile, China, Peru, Philippines, Algeria, Morocco and Tunisia and baseline information and case studies were conducted in these pilot areas.

The International Forum on GIAHS was convened to take stock of the findings of the preparatory phase and give direction for the full scale global GIAHS initiative to be implemented over a 5 to 7 -year period. The objectives were to elaborate further the overall conceptual approach and scientific underpinning of the programme; to examine its requirements for an enabling policy and legal environment; to outline its management structures at local, national and global levels and to mobilize further partnerships and resources.

The Forum was attended by 12 delegates from the pilot countries (GEF Operational Focal Points and National Facilitators), 15 representatives of UN system and other partner institutions, 18 experts from universities and research institutes, 8 members of embassies and country representations to FAO and 21 FAO staff members, consultants and volunteers.

## *Progress in the development of the GIAHS conceptual framework and its scientific underpinning*

The Forum further elaborated the concept of the GIAHS recognizing that GIAHS are complex “social-ecological systems” where the traditional values, beliefs and social relations of local communities and their traditional knowledge, technologies and practices are an integral part of the biodiversity and agricultural heritage to be preserved. The close interaction and co-evolution of the biological and cultural compo-

nents of these systems over centuries gave them a considerable resilience and adaptive capacity to changing circumstances. Their preservation should therefore follow a “dynamic conservation approach of bio-cultural diversity” based on the inherent skills of the local communities in the adaptive management of their environmental and cultural heritage. The complexity of this concept and the difficulty of the task were recognized, however, as these systems are under multiple influences and threats by endogenous and exogenous forces. While the GIAHS contributions to a new sustainable development paradigm are promising, further research and practical experience - as should be provided by the GIAHS pilot projects- are needed to test the guiding principles discussed by the Forum participants. Among these, the following were highlighted: research workers and farmers should study together how certain intuitive/empirical practices of traditional agriculture systems could be explained with the help of modern science, quantum physics in particular, and, there from, a post-modern agriculture may develop using both old and new agricultural knowledge and practices.

The traditional knowledge and innovative technologies of local farmers in the GIAHS should be investigated and agro-ecologists should engage in an active “dialogue of wisdom” with them to understand their rationale and potential for transfer and wider application. The reduction of poverty is the essential prerequisite to the dynamic conservation of GIAHS. The local and external causes of poverty should be investigated through the empowerment of the GIAHS communities and a multi-stakeholder participatory process. The use of the wider, internationally recognized criteria of the DAC-OECD methodological framework was proposed for this analysis (covering the human, economic, socio-cultural, political and protective/resilience dimensions in combating poverty) rather than the 5 capitals of the DFID Sustainable Livelihoods framework (human, natural, physical, financial and social capitals) which focuses mainly on local conditions. The agro-biological and cultural diversity of the GIAHS should be preserved also because it permits the diversity of their activities, products, sources of income and other benefits and therefore facilitates the resilience and adaptive capacity of the system. This diversification should be maintained for sustainable poverty alleviation.

## *Development of the GIAHS mandate and legal framework*

Elements of a GIAHS conservation framework can be found in existing international instruments such as the World Heritage Convention, the UNCBD and the International Treaty on Plant Genetic Resources for Food and Agriculture. None, however, covers all the aspects of the GIAHS initiative and places a sufficient emphasis on agricultural heritage, agro-biodiversity, dynamic conservation, local empowerment and multi-stakeholder processes. GIAHS, therefore, should seek special international recognition with its own mandate and legal framework.

The scope, objectives, definitions, criteria and other components of an international instrument on the conservation of GIAHS were discussed and identified. The instrument could take different forms: a set of internationally accepted principles and guidelines, a non-binding agreement or undertaking or an international convention or treaty. A step-by-step consensus building process should be initiated capable of averting possible conflicts of interests and influencing national legislations related to the GIAHS. Special attention should be given to the requirements to be met for the international designation of a GIAHS site and for its inclusion and listing in a "World Agricultural Heritage Category" (and for its de-listing).

The experience of the FAO Commission on Genetic Resources for Food and Agriculture (CGRFA) was found particularly relevant, especially the process by which an international undertaking on plant genetic resources was negotiated and then became an international treaty, with the addition of protocols (e.g. farmers' rights) and a funding facility. This treaty, however, gives limited attention to in situ conservation and does not cover animal genetic resources and other elements of agro-bio-diversity. An international instrument on GIAHS could therefore fill an important gap and a submission on GIAHS to the CGRFA and FAO Council was proposed to this effect.

Other useful elements for the development of an international instrument on GIAHS should be found in the work of the WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge (TK) and Folklore. The general principles and guidelines on TK protection, now under negotiation, were presented and further cooperation between WIPO and the FAO and CBD Secretariats was recommended.

## *Review of the pilot country experience and development of the GIAHS management structure*

Progress reports were presented to the Forum by the national facilitators/focal points of the pilot systems on Andean Agriculture (Peru), Chiloe Agriculture (Chile), Rice-Fish Agriculture (China), Ifugao Rice Terraces (Philippines) and the Oases of the Maghreb (Algeria, Morocco and Tunisia). All projects had adopted the GIAHS holistic, agri-cultural approach and its focus on the local community. The rich agro-biodiversity of the initial selected sites was confirmed and was found to be closely associated with specific environmental conditions, management practices and cultural traditions. Out-migration, the introduction of new technologies and external market influences were identified as major problems in all sites but, while some sites focussed essentially on a specific, discrete system, others took an aggregate/area-based, multiple land use approach. The use of a whole landscape approach - integration of both discrete and area-based approaches and upscaling of the systems was recommended to raise global awareness of GIAHS dynamic conservation.

Strong disparities were found to occur between the local community level and the higher levels in the GIAHS sites as regards the flow of information, organization, technology and management control. An overall management structure was outlined with several levels of multi-stakeholder participation in steering the programme and projects and providing the necessary technical and operational guidance, at local, national and global levels. Special emphasis was placed on the community as the imperative entry point for all the management processes and on the need for multiple cooperative linkages (bottom-up, top-down and horizontal) among the actors at all levels. The general outline of a management protocol was proposed with the primary objectives of enhancing the self-determination of the GIAHS communities and following the principles of subsidiarity and mutual accountability.

## *Partnership development and resources mobilization*

The Small Grant Programmes (SGP) of the Global Environment Facility (GEF) managed by UNDP was presented. The GEF-SGP premise is that community-based organizations and NGOs can produce global environmental benefits through small initiatives that

address local environmental management, livelihoods and local empowerment. The management structure of the programme is highly decentralized with national multi-stakeholder steering committees defining the country programme strategies and national coordinators ensuring the identification and implementation of country projects. Some 800 projects are dealing with agro-biodiversity, with strong emphasis on certification and marketing of agro-biodiversity products. There is wide scope, therefore, for further SGP–GIAHS partnership, notably for joint programming and financing at national level and, at global level, for the promotion of common objectives.

The maintenance of worldwide diversity- both cultural and biological - through small grants and other activities is also the major objective of the Christensen Fund. It operates as a private institution supporting bio-cultural conservation through small grants. The Fund expressed interest in co-operating the GIAHS in view of the large coincidence of their objectives and approaches.

Another expression of strong interest and support was expressed by the Secretary General of the Roman Forum. He invited the GIAHS to be more ambitious in involving a wider range of partners and funding sources, in the private sector in particular, mobilizing local NGOs and making use of micro-credit facilities in support of village-level enterprises. He also recommended to strengthen the participation of policy-makers, NGOs and scientists in the GIAHS Forum so as to give it more influence in promoting innovative strategies of sustainable agricultural development.

The work of the UN Forum on Indigenous Issues was also presented. It could play a major advocacy role in support of the GIAHS. The International Decade for Indigenous People, its Action Plan and the ongoing negotiations of a UN Declaration on the Rights of Indigenous People should provide a number of opportunities of cooperation with the GIAHS.

In addition to these expressions of support at international level, several national coordinators and focal points of pilot systems reported that they had developed mechanisms of governance, management and stakeholders' participation at national level to strengthen partnership and support for their pilot systems.

---

<sup>1</sup>GIAHS were defined as "remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the dynamic co-adaptation of a rural community/population with its environment and its needs and aspirations for sustainable development".



*“Around the world agricultural systems are increasingly vulnerable to overuse, inappropriate practices, and altered weather patterns. The task force recommends increasing the use of sustainable agriculture techniques to preserve natural assets, restoring and managing desertified lands, and protecting surrounding natural habitat”*

*- MDG Task Force*

Opening session

---

**International context of Agricultural Heritage Systems**

## Welcome address

*Peter Kenmore, Chair FAO Interdepartmental Working Group on Biodiversity, Rome, Italy*

---



In opening the meeting, Dr Kenmore recalled that, since the 1950's, FAO, particularly its Forestry Department, had been concerned about the impact of the traditional agricultural systems such as the "slash and burn" systems. In the 70s already, field studies of these systems were conducted encompassing both their scientific, anthropological and cultural aspects and focussing on the local knowledge (e.g. in the Ifugao region of the Philippines). When the UN Convention on Biodiversity was launched, FAO established an Interdepartmental Working Group on Biodiversity and, under its auspices, several biodiversity exploratory surveys were carried out with the support of the FNPP in Africa, the Middle East and South Asia, and more are now in demand. The FAO work on GIAHS proved to be particularly relevant to the UN Millennium Development Goals (MDGs) of achieving food security for all and improving the living conditions of the rural poor (MDG 1).

It contributed also to MDG 7 as regards sustainable development, conservation of natural resources and agro-biodiversity. Referring to the goals of the meeting, Dr Kenmore hoped that the Forum would help in achieving a paradigm shift emphasizing the local

populations as part of the ecosystem in the ecosystem approach followed by FAO and others. He expected the meeting to develop public awareness and better understanding of the GIAHS among international development organizations and scientific institutions. The Forum should also promote closer linkages of these activities with the Right to Food Initiative and others related to human rights.

There was a further need for a stronger scientific underpinning of the GIAHS concept as well as a much wider financial network in support to a growing number of GIAHS sites. In closing, Dr Kenmore gave several examples showing that traditional systems can maintain an unexpectedly high biodiversity when not harmed by pesticides and other modern technologies. With resolve and tenacity, one can rescue and protect the biodiversity and cultures of the traditional systems now being threatened by war, social unrest, pest outbreaks or modern technologies.



## Keynote address

### Application of Quantum physics for a holistic approach to agricultural heritage system

*Henk Kieft Chair, ETC Netherlands*

---

For Dr. Kieft, agriculture has two closely linked facets, “*Agr*” and “*Culture*”, which should be examined by the GIAHS Forum in an integrated way, cutting across disciplines, cultures and generations. His contribution to this goal was to highlight certain life processes related to modern physics that may facilitate the integration of old and new agri-cultural knowledge, the empowerment of local communities, and the further elaboration of the GIAHS concept. Several examples were presented by Dr. Kieft illustrating the uses of electro-magnetic waves in both modern and traditional agriculture. Some contributed to enhancing animal and plant production (e.g. the “sonic blooms”) and food quality. Others enabled early detection and effective control of diseases and pests through a better understanding of the behavior of insects and livestock species as influenced by electro-magnetic radiations.

A wide spectrum of electro-magnetic waves (in the visible and non-visible spectrum) is at play, both from space and on earth, in diverse physical and biological processes influencing animal and human behaviors. Dr. Kieft stressed that our world should not be seen as being made of matter and energy only, but also of quantum information carried by energy and circulating in the vacuum among particles and holding matter together. This new understanding of the soil-plant-animal-man relationships should make agriculture more efficient and less harmful to our environment and health. It should enlarge our concept of modern agriculture from a “chemical/organic” agriculture (considering the living matter as essentially organic and chemical), to a “quantum agriculture” considering the role of electro-magnetic radiations in life processes. Ultimately an even broader concept should encompass the “intuitive agriculture” practiced since millennia by the traditional farmers and their shamans, that is now being investigated by young research workers in the field of quantum physics. Thanks to these developments, the relevance of the GIAHS programme approach was now better appreciated, Dr Kieft argued. It offered promising opportunities to reconcile traditional and modern agriculture in the search of more resilient and sustainable systems.





## Session 2

### Mainstreaming GIAHS at national and international levels

---



This session aimed at discussing and evaluating synergies and inter-linkages at local, national and international levels in the implementation of GIAHS within various multilateral environmental agreements and programmes. It paved the way to a discussion of new policy directions and regulatory framework needed for GIAHS, to mainstream its activities in the key sustainable development agenda at international, national and local levels. Mr. Philippe Mahler, Senior Advisor, FAO, chaired the session.

## An examination of GIAHS in existing multilateral instruments

Stuart Harrop, Durrell Institute of Conservation and Ecology, University of Kent, Canterbury, U.K.

---

Having reviewed the current international legal and policy regime, Prof. Harrop found that it does not support the concept and reality of the dynamic, evolving and adaptive social-ecological systems that constitute GIAHS. The foundations are there, however, to be built upon in several articles of the UN CBD, in UNESCO's World Heritage Convention as regards cultural landscapes, the International Treaty on Plant Genetic Resources for Food and Agriculture, the UNCCD and other instruments. Nevertheless, without an express mandate, GIAHS systems remain a poor relative to other key sustainable development and conservation agendas and there is no clear concept in policy and regulation to protect the human links to both landscape and genetic resource diversity. Moreover the existing international instruments for protected areas essentially aim at the conservation of natural diversity outside human influence, avoid the land tenure issues. When supporting agricultural landscape conservation as in the WHC, the focus is placed on few examples only because of their outstanding universal value, and not on the systems *per se*.

over the development plans and programmes. In addition, other issues require further examination as regards the place of GIAHS products in international trade, the Intellectual Property Rights, the stake of GIAHS communities in benefit sharing arrangements, and the overlapping institutional remits. As a first step, more information is required to determine precise legal priorities and structures for the GIAHS. Prof. Harrop listed a number of topics where more information should be collected and analyzed in the areas of conservation, land tenure arrangements, traditional knowledge and trade in GIAHS products. Several options could then be considered: a convention on the GIAHS; a protocol to the CBD; a soft law instrument such as a voluntary undertaking; a hybrid-hard/soft instrument addressing core regulatory aspects supplemented by a joint venture for GIAHS management, associating key international organizations concerned. Another option would be merely to rely on existing legal provisions, on grants and other financial aid and develop further joint ventures.



Examining further how GIAHS systems are addressed in international instruments and national legislation related to land use rights and human rights (and indigenous rights), Prof. Harrop identified other problems. The customary laws are not adequately integrated with state law. In general, the land tenure challenges are not addressed. Local communities often have no control on the preservation of their cultures and traditions, over the use of natural resources and



## The experience of the Commission on Plant Genetic Resources for Food and Agriculture (CGRFA)

*José Esquinas-Alcazar, Secretary of the CGRFA, Agriculture Department, FAO, Rome, Italy*

---

Prof. Esquinas explained the long process of consensus building by which FAO had gradually overcome the conflicts among major economic, environmental and commercial interests and moved from a soft law instrument to an international treaty on plant genetic resources for food and agriculture. In 1983 the FAO Conference had established the Commission on Genetic Resources for Food and Agriculture (CGRFA), the first UN's permanent intergovernmental forum dealing with agro-biodiversity and with a current membership of 167 countries. Its mandate covers all components of agro-biodiversity of relevance to food and agriculture: plants and animals, forestry, fisheries and micro-organisms.

Beside *ex situ* conservation in gene banks, the CGRFA had emphasized, since its inception, the importance of *in situ* conservation areas where agro-biodiversity can be protected and evolve. Progress in *in situ* conservation was so far limited, however, and Prof. Esquinas welcomed the GIAHS and supported its integrated approach to *in situ* conservation of genetic resources for food and agriculture. On its 20<sup>th</sup> anniversary, the CGRFA identified, as its main achievement, the development of the International Treaty on Plant Genetic Resources for Food and Agriculture with pioneering provisions for the implementation of Farmer's Rights and for a Multilateral System of Access and Benefit-sharing. It therefore recommended preparing a Multi-Year Programme of Work (MYPoW) to be submitted at its Eleventh Session, in June 2007. The MYPoW will include work on the agro-ecosystem approach, integrating the various areas of biodiversity for food and agriculture. GIAHS, with its clear intersectorial agro-ecosystem approach is in line with this recommended new conceptual dimension. Prof. Esquinas suggested that the CGRFA could provide, if countries so wish, an ideal intergovernmental umbrella where GIAHS issues and concerns could be raised, and where priorities and policies could be defined. The Commission identified the development of the International Treaty on Plant Genetic Resources with pioneering provisions for the implementation of Farmer's Rights and for a Multilateral System of Access and Benefit-sharing as its main achievement. It also recognized the limitations of taking purely sectoral approaches.



## The experience of UNESCO World Heritage Commission and Man and Biosphere Reserve Programme

*Philippe Pypaert, Head a.i. Science and Environment, Regional Bureau for Science and Culture in Europe UNESCO-UVO*

---

In his presentation, Mr. Pypaert reviewed the evolution of the basic concepts underlying the programmes of the World Heritage (WH), the Man and Biosphere Reserves (MAB BRs) and the GIAHS. He noted that all three had gradually moved from a focus on conservation and protection towards a broader integration of environment and sustainable development objectives in territorial development. In 1972, the WH Convention set out 10 operational guidelines for the definition of natural/cultural heritage. Among these, several references could be found already to outstanding examples of traditional land use. In 1992, strategic orientations were adopted calling for the integration of cultural landscapes, biodiversity and sustainable land use as outstanding interaction between people and their environment. The WH concept evolved further on the opportunity of periodic meetings and reporting, leading, in 2005, to the integration of cultural and natural heritage criteria and the adoption of common conditions of integrity for all types of properties.

Mr. Pypaert noted, therefore, that there is much room for GIAHS within WHC, providing that the GIAHS sites are recognized of outstanding universal value and their inscription in the WH list complies with the established WH criteria and procedures. Conversely, this inscription would contribute to the recognition of GIAHS sites, their dynamic conservation and sustainable management in line with the GIAHS objectives. Turning to the MAB BRs, Mr. Pypaert explained that they follow a common model of concentric areas with a core area for strict conservation and monitoring, a buffer zone and a transition zone where diverse land uses, research, education, training and tourism activities are allowed with varying degrees of intensity. In these reserves, UNESCO experiments and promotes diverse forms of cooperation and education in territorial planning and sustainable development. Their networking approach could also apply to the GIAHS and help to understand better the land-use/environment linkages and the impact of development policies, in particular as regards agriculture.

The GIAHS could similarly broaden its scope beyond a network of selected sites and so contribute to a re-orientation of policies towards sustainable rural development. In closing, Mr. Pypaert made a plea for a coordinating platform of MAB, WHC, GIAHS and others concerned and in networking their efforts to impact more effectively policy-making.



## GIAHS Philippines: Governance and Local Empowerment in the Environment and Natural Resources Sector

*Analiza Rebuelta-Teh, GEF Operational Focal Point and Assistant Secretary, DENR, Quezon City, Philippines.*

Defining governance as the totality of institutional controls in society, Ms. Rebuelta-Teh reported that the Philippines experienced recurring problems due to the disharmony between statutory and customary governance systems, especially in the environment and natural resources sector. A number of enabling policies and laws were enacted for improved governance and local empowerment in this field.

Their aim was to strengthen societal control mechanisms and processes that link key decisions and actions on the environment to shared social and ecological objectives. Ms. Rebuelta-Teh described selected experiences on local empowerment and devolution/decentralization involving the local communities in the management of forest land use systems. Referring to the expected contributions of the GIAHS Project in promoting environmental governance, the speaker stressed that an innovative institutional structure was needed to avoid the risk of losing local customary governance systems in favor of government formal structures. Traditional institutions and resources management systems were disappearing under the pressures of market globalization and the introduction of unsuitable and ecologically harmful technologies. Traditional beliefs that link indigenous people and nature were abandoned concurrently.

The requirements for a GIAHS support governance system were outlined:

- at national level, anchoring GIAHS-supportive macro policies, strategies, programs, standards, resource allocation decisions and actions on accountability, participatory processes, transparency, responsiveness, and rule of law principles, on the one hand, and, on the other hand, enhancing the capacity of the State to formulate responsive and effective policy and programs independent of pressure from sectoral/private interests;
- at regional and provincial level, mainstreaming the conservation and adaptive management objectives of GIAHS in regional and provincial level sectoral and inter-sectoral policies, development plans, programs, and projects, following the principles and practices of good environmental governance;
- at the municipal and Barangay levels, integrating the GIAHS and environmental governance principles and processes; harnessing local political, social and economic processes as well as appropriate new technolo-

gies; and strengthening organizational management capacities and values of local institutions.







## Session 3

---

### Building Innovative Partnerships and Resources Mobilisation



This session aimed at analyzing partnerships around GIAHS and opportunities for new alliances. It reviewed the interest and commitments of different institutions and stakeholders for GIAHS objectives and component activities. The possibilities of partnership building and the modalities of resource mobilization in support of the GIAHS at international and national levels were also discussed. Mr. Jean Philippe Audinet, Director Policy Division, IFAD chaired the session.

## GEF Small Grant Programme

*Nick Remple, UNDP/GEF/SGP Global Manager (Programmes)*

---

Global Environmental Facility Small Grants Programme (GEF-SGP) is a corporate programme of the GEF managed by UNDP. Initiated in 1992, it now covers 105 countries with 7,300 projects – averaging \$20,000 (\$50,000 is the maximum). Its resources up to 2007 are totalling over \$200 million in GEF funding and approximately an equal amount in co-financing. The GEF premise is that community-based organizations (CBOs) and NGOs can produce global environmental benefits through small initiatives that address local environmental management, livelihoods and local empowerment. These benefits can be achieved through direct impacts, up-scaling and/or replication of successful initiatives, mainstreaming, dissemination of lessons and good practice, and policy change.

The GEF-SGP decision-making is highly decentralized. Projects are selected by National Steering Committees (NSC) in the framework of their Country Programme Strategy and then reviewed and approved by SGP Global. The local governance is ensured by a multi-stakeholder participation in the NSC and by a National Coordinator (NC). The GEF-SGP Country Programme Strategy (CPS) sets out a framework of objectives, indicators to assess impacts and lessons learnt, guidelines for generating/documenting knowledge and for partnership arrangements. All country programmes are required to have geographic and/or thematic focus which facilitate synergies among projects and funding sources mobilization. The procedures allow for a rapid and flexible project delivery at national level. Turning to the GEF-SGP involvement in agrobiodiversity, Dr. Remple said that, within a 3000 project portfolio in the field of biodiversity in 2004, at least 800 were labeled as dealing with agrobiodiversity, with strong emphasis on certification and marketing of agrobiodiversity products. A number of workshops and other parallel activities were conducted concurrently in these fields. As to the future, a current review of lessons learnt should lead to more selective and focused projects with emphasis on landscape approach, marketing/certification and micro-credit, as appropriate.

As regards further SGP–GIAHS partnership, there was wide scope for joint programming and financing at national level with GIAHS inputs to the CPS, GIAHS participation in NSC membership and GIAHS providing training for NSCs and NCs. The SGP data base, monitoring and reporting system offered

other opportunities of cooperation with GIAHS. Joint activities could also be contemplated, both at national and global levels, in the field of knowledge generation, documentation and communication. Further GIAHS-SGP cooperation at global level should continue in promoting common strategic goals, in developing partnerships and mobilizing resources.



## The Christensen Fund

*Wolde Gossa Tadesse, Programme Officer, The African Rift Valley (Ethiopia)  
The Christensen Fund, Palo Alto, CA, USA*

---

The Christensen Fund (TCF) is a private institution promoting the maintenance of worldwide diversity- both cultural and biological - through small grants and other activities. It recognizes that the richness and beauty of bio-cultural diversity result from the continuing co-evolution and adaptation between the natural landscape, ways of life and cultural endeavors of local populations. The TCF shares the view that bio-cultural diversity is essential to ecological and social stability but is nowadays subject to multiple threats leading to its degradation and erosion. In some areas, however, local cultures and their landscapes have shown considerable resilience.

TCF supports selectively the stewardship of the cultural and ecological heritages in these areas by developing partnerships between local people and dedicated outsiders and combining their skills and knowledge to create the confidence, capacities and rights that ensure lasting impact. The TCF is governed by a board of trustees with a culturally diverse membership and experience in conservation, the arts, education, community activism, indigenous/traditional knowledge, finance and philanthropy. The board sets out the Fund's investment and grant policy. Recognizing the close link of the GIAHS initiative and of the TCF's objectives and approaches, Dr. Tadesse expressed the interest of the TCF in co-operating with the implementation of GIAHS initiative.



## GIAHS and Traditional Agricultural Community

*Maharaj Muthoo, Secretary General, Roman Forum, Rome, Italy*

---

In a vibrant appeal in support of the GIAHS, Dr. Muthoo said that it should harness the energies of traditional agri-cultural communities and indigenous people into a material force for holistic development. GIAHS is a worthy partner for effectively safeguarding the fate of the local communities, their livelihoods, food security and biodiversity. Governments must provide an enabling environment for the GIAHS for the sake of the planet's well-being – now and in the future. What is required is a partnership among communities, governments, civil society and the private sector. Promoting such collaborative partnership and providing model examples is part of the GIAHS mission. We must find ways to think and act together, said Dr. Muthoo, inspired by the shared understanding of humanity in the world, given the beauty and beastliness of its diversity. GIAHS can provide an ingenious model to reverse the threat of compartmentalized and unilateral thinking and acting. Biodiversity, living heritage systems and traditional knowledge have been a big loser because of this compartmentalization. Synergies should therefore be developed among ideas and values, among regions and nations, among organizations and institutions, across the boundaries of governments, the market, citizens and civil society.

The expected outcome should be concerted action at international, regional, national and local levels through a partnership for local community development, ecosystems and agro-biodiversity. Dr. Muthoo recommended that the GIAHS involve a wider range of stakeholders including the private sector (firms, federations, employer associations and business groups), the CSOs, the media, philanthropic foundations and other funding institutions. He pointed out the role of NGOs in supporting small and medium-sized enterprises and cooperatives having characteristics closer to civil society, such as for village women micro-finance and tele-connectivity. He also stressed that GIAHS was in line with a number of international concerns and endeavours such as those related to globalization and governance, the MDGs, natural resources and the environment, and food security. Dr. Muthoo invited the GIAHS Forum to develop a comprehensive strategic framework for effective collaborative partnerships; to become a center of excellence with core competency in selected focus areas of GIAHS; and to be closely associated with the donor community mobilizing wider

sources of financing (reasonable annual targets should be of the order of 10 increasing to 30 million dollars, he said). In closing, he recommended that the GIAHS Forum should be recognized as a world forum where statesmen, policy makers, CEOs and scientists together with local communities address the dangers and hopes for the future global system of sustainable agriculture, optimal land-use and dynamic conservation without the constraints of formal intergovernmental negotiation.



## NGO/IPGRI/WI Programme on the Oases of the Maghreb

*Noureddine Nasr, IPGRI (now called Bioversity International), Regional Coordinator, Tunisia*

---

Mr. Nasr started his presentation by emphasizing the importance of the oases in the Maghreb: covering 184,000 ha; with a population of 5 million, mostly poor, people; very old, intensive, productive and diversified land and water use systems, often subject to multiple threats and degradations. Different types of oases were recognized in the fringes of the Sahara desert, including those of the wadis, those in sand dune depressions, the oases in the mountain valleys and the coastal oases. Oases usually display three levels of vegetation: the date palms, the orchards and the annual crops (cereals, fodder and vegetable crops). Over centuries, these systems accumulated a rich experience in land and water management and in the husbandry of local crops and livestock. The oases are threatened by plant diseases and pests, sand dune encroachment, water and soil salinization, waterlogging in places and groundwater depletion elsewhere, fragmentation of land holdings, and out-migration of young people leading to gradual depopulation and abandonment. Genetic erosion and loss of local knowledge proceed concurrently.

From 2001 to 2005, the IPGRI/UNDP/GEF project on date palm promoted the rehabilitation of oases with a view to preserving their bio-diversity. It involved a number of local stakeholders, governments, NGOs, bilateral and multilateral donors as well as a number of international programmes. Several pilot sites were established in the vicinity of local universities, oases agriculture research centres, development services, and NGOs. In the three Maghreb countries, there is an increased awareness of the importance and value of the oases and a growing interest in their rehabilitation.

Several natural reserves, rehabilitation projects and development programmes were launched. Further to a GIAHS workshop in Gafsa, in November 2005, a five-year action plan was established with multiple partnership and networking arrangements. In June 2006, a second workshop was convened in El Oued, Algeria, to raise partner awareness and provide training. Several varieties of date palm were already identified with specific environment and management requirements, different qualities and uses. Further agreements and projects are under negotiation to broaden the scope of the programme and address oases rehabilitation more comprehensively.



## UN Permanent Forum on Indigenous Issues

*Victoria Tauli-Corpuz, Chairperson, UN Permanent Forum on Indigenous Issues*

---

Ms. Tauli-Corpuz explained that the UN Permanent Forum on Indigenous Issues is a new consultative body created by the UN General Assembly to give focussed attention to the indigenous people problems and mobilize action in their support. It is made of experts of indigenous origin, knowledgeable in the diverse disciplines relevant to indigenous issues. Its members have joined in several teams addressing a series of selected topics and reporting to the UN GA via the Forum.

The Forum has launched a plan of action within the framework of an International Decade in support of the indigenous people and in association with a UN Interagency Working Group. The plan should promote action on a number of key problems of the indigenous people such as economic and social development, human rights, environment and land use. A draft UN Declaration on the Rights of Indigenous People is now under negotiation with mixed results, some major countries opposing the present text while other supports it. Ms. Tauli-Corpuz stressed that the GIAHS approach is in full agreement with the principles and action promoted by the UN Forum and pledged to raise awareness and support of its membership about the GIAHS programme and its activities.



## Session 4

### Empowering Local Communities through GIAHS

---



This session aimed at illustrating how GIAHS contributes to promote good governance and empower local communities. It took stock of multi-stakeholder processes formulated by Wageningen International and tested in the Philippines and China. The session discussed the importance of institutional arrangements at international, national and local levels to empower local people for sustainable development and natural resources management. Prof. Michael Stocking, University of East Anglia, U.K. and Vice-chair of the Technical Advisory Panel of the GEF, chaired the session.

## Institutional mechanism in participating countries for dynamic conservation of GIAHS

Frank van Schoubroeck<sup>1</sup>, Luohui Liang<sup>2</sup> and Mary Jane de la Cruz<sup>3</sup>

---

As the FAO-GIAHS initiative is ending its preparatory phase and approaching the full scale project implementation, the authors felt that, in participating countries, practitioners need further guidance. In the pilot systems and sites, it was observed that much participatory expertise (application of tools, involvement of a wide variety of stakeholders) is already in place or perceived unneeded in the particular situation. However, project management structures (plans, platforms, procedures), through which multi-stakeholder processes should be implemented, were neither conceptualised nor very functional. The new phase justifies the development of a project implementation strategy that stands on the shoulders of practitioners and anticipates future development issues of the GIAHS initiative. The authors first proposed to adhere to the following principles for the transformation of existing (threatened) agriculture heritage systems into future viable (flexible, adaptively managed) systems:

- the GIAHS project should promote self-determination of the GIAHS community, through appropriate institutional adaptations, to enable the GIAHS community to develop their system according to their own contemporary needs;
- while dynamic conservation of GIAHSs is a global concept, its implementation requires national policy frameworks and local institution building to support community-level dynamic conservation activities
- the GIAHS dynamic conservation concept should provide a promising alternative to mainstream agriculture development

GIAHS dynamic conservation is multi-disciplinary: agriculture / economy, biodiversity / environment, anthropology / culture and decentralisation / governance, all interact in a single GIAHS site. The GIAHS community is in charge of combining these different disciplines into a single coherent process of “dynamic conservation” of their system. A “consortium of organisations” is required with a multi-level network: the global level sets the definition the GIAHSs and communicates definition and recognition to lower levels; the national level develops a national policy framework for dynamic conservation of GIAHSs; the local (provincial, prefecture, region, district, county) level develops institutions in support of GIAHSs; and the community level

actually ensures the dynamic conservation of the GIAHSs. Mandates and communication protocols should be formulated for each level.

For the initiation of the projects, it was proposed that FAO country office jointly with an appropriate local high government office (e.g. the GEF focal point) select a National Focal Point Institution (NFPI). A set of criteria was proposed for this selection. A National Focal Point should be appointed as part of a Letter of Agreement between the NFPI and FAO setting out the objectives, responsibilities, cooperation and implementation modalities, the reporting requirements, etc. A similar pattern of arrangements was proposed for lower levels. The authors then identified the prime tasks, the support needed, and the likely stakeholders for each action level (global, national, local, community).

They also outlined the main points to be addressed in project formulation at each of these levels. They emphasized that all action levels require services from each other and should be accountable to each other and ultimately to the local community. The conditions of withdrawal of project support should also be determined when self-sustained activities can proceed. A flow chart was proposed summarizing the methodological steps for the formation of GIAHS support project structures indicating for each step the protocol to be followed and the expected outcome. The authors supplemented their proposals with a series of guidelines regarding the project focus on the GIAHS community as ultimate beneficiary, the relations between management levels, the cooperation among stakeholders, the formation of project structures and the financial management.

---

<sup>1</sup> Visiting Fellow, Wageningen International, The Netherlands; <sup>2</sup> Academic Programme Officer, UN University, Tokyo, Japan; and <sup>3</sup> Consultant, GIAHS-FAO, Rome, Italy



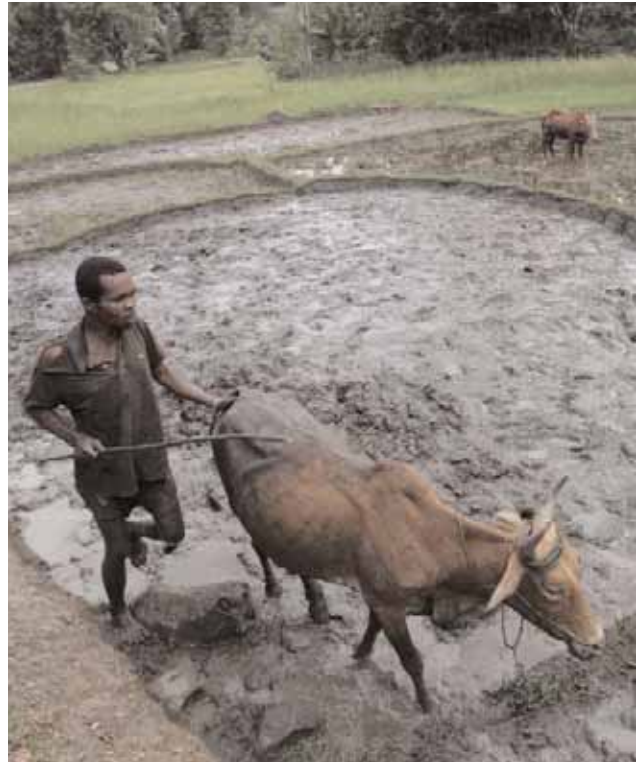
## Recent Developments in Intellectual Property Rights and Indigenous Knowledge

*Shakeel Bhatti, Head, Genetic Resources, Traditional Knowledge and Biotechnology Section, WIPO, Geneva, Switzerland*

Dr. Bhatti first gave an overview of WIPO, its mandate, membership and structure. The WIPO Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge (TK) and Folklore developed general principles and guidelines to prevent misappropriation of TK (e.g. patents on genetic resources by foreign firms), to apply the principle of prior informed consent (PIC) and to ensure equitable benefit sharing. 10 elements of TK protection were formulated in the form of questions to be addressed to determine the purpose, scope, criteria, ownership, the rights and their modalities of acquisition, their administration, their duration and the conditions of termination of the protection. These elements are being used to analyse and compare existing national legislations and other legislations in the process of development.

The draft of an international instrument on TK protection has been discussed among WIPO members for several years. Its present focus is on the substance of protection rather than the legal form, it may take, and on the prevention of TK misappropriation rather than the proliferation of new intellectual property rights.

The aim is to establish an internationally accepted legal doctrine on TK protection, listing its policy objectives, giving general guidelines and specific substantive principles, setting out the definition of misappropriation and identifying the different acts of misappropriation. Many countries and organizations already apply the key features of the draft. The work of WIPO on TK protection has a special relevance to the GIAHS in so far as the draft WIPO provisions cover traditional agricultural knowledge and recognize the communities as those who should be the main beneficiaries and actors in its protection. Further collaboration between WIPO and GIAHS should be mutually beneficial and are in line with the recent instructions given by the WIPO Committee to coordinate its work closely with the CBD and FAO Secretariats.



## GIAHS Conservation Framework in China

*Qingwen Min, Head, Professor, Center for Natural and Cultural Heritage, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, China*

---

The pilot system selected to be part of the GIAHS in Longxian village is representative of the long history of co-evolution of the rice-fish agriculture in China.

This ecosystem, particularly its biodiversity, is now subject to multiple threats. Different kinds of agro-ecosystems are found in the area. Forests under multiple, integrated use cover 70% of the water catchment, the rest being occupied by paddies, home gardens, trees and hedges in the field and small livestock / poultry husbandry. 20 native rice varieties were identified (many are threatened), many vegetable species such as lotus roots, beans, taro, eggplant and numerous other native vegetables including 7 species of wild vegetables, and fruit trees such as the Chinese plum (*Prunus Simoni*) and mulberry.

There are 6 native breeds of carp (red, black, white, variegated carps), and 5 other species of fish, amphibians, snails. In the catchment, 62 forest species are used, of which 21 as sources of food; 53 medicinal herbs are found as well as wild cats and snakes. The rice-fish farming ecosystem provides multiple goods and services: food security (rice production); quality nutrition and income generation (consumption and sale of fish); prevention of malaria (mosquito larvae are eaten by fish); conservation of biodiversity; biological pest control and health improvement due to the reduction of pesticide use.

This ecosystem also contributes to the carbon and nutrient cycles and to soil and water conservation and restoration. Its ingenious approach therefore demonstrates how economic and social benefits can be harmonized with the essential ecological benefits and the maintenance of local culture and traditions. Historical records show that this system was already in use 1700 years ago and already displayed a wide biodiversity. Since 1949, rice-fish agriculture developed quickly in many Chinese provinces but its biodiversity and its ecosystem functions are now under threat as a result of the growing areas under intensive rice monoculture and fish farming enterprises producing higher yields at lower cost. These modern systems using excessive applications of chemicals are detrimental to food safety. Their negative impacts on ecological services and environmental protection are seriously undervalued. Several obstacles impede the conservation and development of rice-cum-fish farming. Specific

laws or management regulations on GIAHS conservation do not exist. The intended role of the ecological restoration project is not fulfilled and concrete measures to protect endangered species are lacking. The main reasons are insufficient investments and the shortage of useful research results. Moreover, bio-cultural diversity conservation is still at the initial stage. The local authorities give it low priority compared with economic development.

The establishment of a GIAHS institutional framework and multi-stakeholders participatory mechanisms is therefore necessary. The analysis of the GIAHS (functioning, characteristics, threats, challenges and opportunities) should first be conducted. A preliminary assessment should be initiated regarding the policy, regulatory and incentive environments in order to identify appropriate supportive measures and remove perverse incentives. For the full scale GIAHS project, management, monitoring and evaluation methods should be established and further elaborated. Capacity building of the weakest and most vulnerable stakeholders should be provided and small scale priority activities should be launched that directly benefit farmers and encourage their participation.

In closing, Prof. Min outlined an adaptive management strategy and a master plan for the dynamic conservation of traditional rice-fish agriculture in China, identifying, at different levels, the priority tasks, the support needed and the likely stakeholders to be involved. Traditional rice varieties would be gradually re-introduced. Incentives would be granted to start local industries, eco-tourism and organic farming. Local traditions, customs and cultures would be surveyed and promoted. A multi-level stakeholder process would be developed with local, provincial, national and international linkages to spread the dynamic conservation approach and mobilize social group participation. A set of registration criteria, a list and a network of the rich Chinese Agricultural Heritage Systems would be established under the guidance of a national steering committee, a national technical advisory committee and local implementation committees.

## GIAHS in Chile: National Governance and Local Empowerment structure

*Carlos Venegas, Regional Director, Centre for Education and Technology (CET), Chile*

---

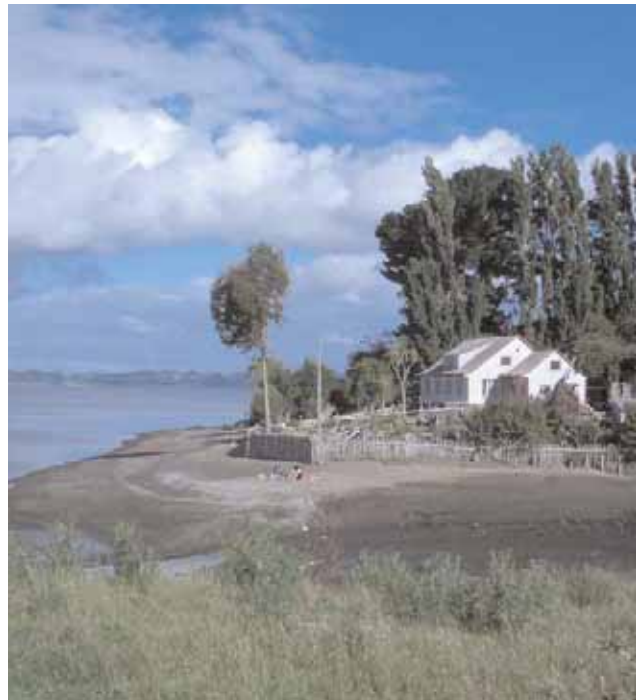
The GIAHS project is located in the Island of Chiloe of the Lake Province of Chile. It covers 9,181 sq. km mostly under forest and small scale agriculture, with coastal fisheries and a national park of about 43,000 ha. Its population (154,766 inhabitants) still includes 10% of native mapuche/huilliche origin. The island is particularly rich in biodiversity and natural resources with many endemic species of fauna and flora. The major land use is that of small family farms growing potatoes as main staple (the island is a center of origin of the crop with some 200 local varieties of potato being preserved). Potato cultivation is rotated with wheat and forage legumes for the control of pests and diseases. Organic fertilizers are used. The remoteness of the island has favoured the production of a wide range of local vegetables and medicinal plants. Animal production is also diversified but mostly seasonal due to the shortage of feeds in winter. The forest is a source of multiple goods and services: firewood, wood for house building, boat construction and cottage industries, fodder and medicinal plants but is subject to deforestation for pasture and agriculture development and for wood industries.

Four processes of change are now threatening the self-sustaining production systems and rural societies of the island. The globalisation trends are changing the local way of life and consumer habits. The prices of many basic agricultural products and commodities of the island are decreasing. The rapid industrial development of local salmon production, mussel production and wood panel fabrication is changing the labour market and causes multiple environmental degradations. Rural migration and urbanization are also changing the population patterns (less than 44% is now rural). Although education and income levels improve concurrently, young people tend to leave agriculture for work in the cities.

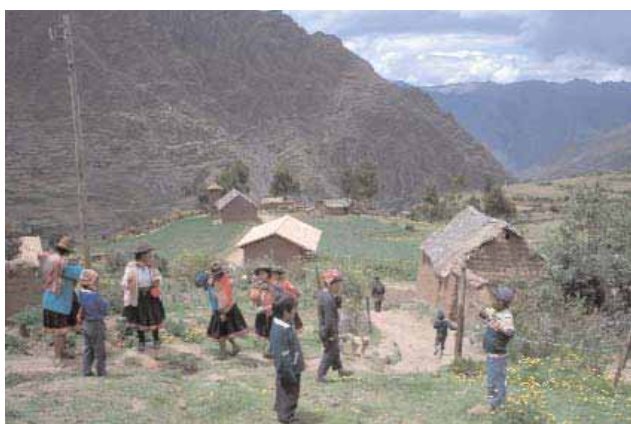
As a result, the rural societies, previously based on the mutual exchange of their local products and services, tend to change with young people working in the cities and in industry and old people in the countryside looking after their traditional crops and farm animals. The accumulated knowledge and experience as well as the culture of these rural societies tend to disappear concurrently. In view of these growing threats, a number of opportunities should be seized to maintain the unique identity and characteristics of Chiloe agri-

culture. Efforts are already under way to remedy the situation by developing infrastructures, tourism, rural micro-enterprises, amenities and recreational centers in rural areas of the island. Niche markets are promoted for local products, including labelled organic farming products. Ecotourism is developed by preserving the natural beauties of the island, its unique local culture and its traditions. This alternative mode of development should be supported with appropriate legislations, regulations, norms and incentives. It should be supported with a number of other measures: programmes of rural education, capacity building, and cultural activities; environment and natural resources protection projects; norms for the control of the social and environmental impact of industries; and certification systems for clean development products and organic farming products.

These initiatives should be implemented and controlled by the local communities. To this end, these communities have to be made fully conscious of the unique qualities of their environment and mode of living. They should be well informed, trained and organized in order to have the necessary capacities, powers



and strengths to manage the ongoing changes while preserving their heritage of values, traditions, natural resources and modes of production. They should also acquire the capacities to establish a constructive dialogue with, and formulate their own requests to the authorities in charge of rural development. This empowerment of local communities should ultimately demonstrate the vast potentialities of an alternative mode of development, both sustainable and equitable, as essential conditions of the success of the GIAHS Chiloe agricultural system.



## Conclusions of discussion group sessions

---



The Forum participants met in two discussion groups in the afternoon of the first day and reconvened again in two other groups in the afternoon of the second day. Their conclusions and recommendations were presented and discussed in the last plenary session of the Forum. Ms. Cathrien de Pater chaired the session.

## Group 1 - Scientific underpinning of Agricultural Heritage Concept

*Chairman: Miguel Altieri*

*Rapporteur: Rajindra Puri*

---

The group discussed and exchanged ideas how best GIAHS could be best understood and frame scientifically. The group agreed with the description that GIAHS is a “socio-ecological system”. They cannot be characterized neither agricultural systems nor ecosystems, they are not places or practices, they are not people, and they are not ideas. They are systems that are made up of the interaction of all of these things – people, places, biological organisms, practices, and ideas. These systems are not the product of industries, of markets, of science, of inventors, policies, ministries, development agencies, or NGOs. They are the product of cultural evolution – that is, of the cumulative knowledge, experience, ideas, and ways of organizing society that have been built up and adapted over centuries or even millennia. They represent above all the ways that people have met all of their cultural and material needs on the basis principally of local resources over time. As it was explained by Prof. Howard, agricultural heritage systems are social-ecological systems. This term best captures the co-evolution of humans and nature – how humans have shaped the natural world and developed organisms to meet their needs, and in turn how human culture, including religion, values, norms, and social relations have been shaped by the ecosystems in which they live. These systems are not ‘primitive’ or simple. They are extremely sophisticated and complex. The people who nurture these systems may be illiterate but they certainly are not ignorant: it takes an average person living in such a society at least a third of a lifetime to accrue the minimum knowledge necessary just to support a household, and a specialist (for example, in medicines, or in the diversity of specific crops, in religion or a political position) may require two-thirds of a lifetime to learn what she or he must know to be considered as truly learned and capable. They are based upon a very complex set of laws and behavioural norms, as well as webs of social relations. The discussion on the definition and unique char-

acteristics of GIAHS as a social and ecological systems require further study to understand how they interact. This should facilitate the formulation of GIAHS management principles of wider application. The concept should therefore evolve, keeping also in mind the ongoing climate change.

The notion of “heritage” had different meaning for different people. GIAHS are global heritage, they represent the resilience, and best hope, for the future of the human race. GIAHS are also locally important agricultural heritage systems, and very possibly they will only remain such if the people living outside GIAHS, are able to support the people who live in these systems to maintain the resilience of their cultures and their ecosystems given so many negative drivers of change. Because a change in one part of the system will very likely have repercussions throughout the system, and these repercussions are also very likely to involve trade-offs, and are also likely to be far-reaching. The group agreed that there is a need to seek complementation of knowledge of these people with scientific and practical knowledge, to help them to identify their problems, the underlying drivers of change, and a range of potential options that can help to make their systems continue to survive and remain viable, for their livelihood, more resilient both in terms of human and in terms of ecosystem welfare, and to support them in the attempt to analyze and understand the possible trajectories of change given different options.

After discussion, there was a consensus to consider that it was for each local community to determine and agree on what their heritage is, with due attention to what their children may need in the future. The “black box” nature of the GIAHS was recognised and it was agreed that a strategic agenda should be developed and addressed, for conservation and adaptive management of GIAHS, with emphasis on practical applications.

## Group 2 - Review of pilot country experiences in GIAHS dynamic conservation

*Chairman: José Furtado*

*Rapporteur: Luohui Liang*

---

The group discussed the experiences gained in the case studies covering the following pilot projects: Andean Agriculture - Peru, Chiloe Agriculture - Chile,

Rice-Fish Agriculture - China, Ifugao Rice terraces - Philippines, and Oases of the Maghreb in Algeria, Morocco and Tunisia. Summaries of the country case

studies had been circulated and were briefly presented. The case studies had provided welcome opportunities for interaction and exchange of experience among project leaders. The absence of indigenous community participation in the case study process was regretted, however. It was noted that each pilot project area covers several ecosystems and the interfaces among these ecosystems are critical as regards their biodiversity in particular, and require special attention in the dynamic conservation of GIAHS. The main problems and challenges facing each pilot project were reviewed.

Among these, out-migration, the introduction of new technology and external market influences were recognized as threatening all projects. It was noted that the approach and focus of the projects varied, however. The projects in China, the Philippines and the Maghreb focussed more on specific, discrete systems, while those in Chiloe and the Andean Altiplano took an area-based/ territorial/land use system approach. The landscape approach was suggested as it could cover all the aspects of the GIAHS.

The discussion group stressed the importance of identifying further the environmental services and benefits provided by the pilot projects and their beneficiaries at local, national and global levels. While some

services essentially benefit the local community, others are also of general public interest at national and global levels (e.g. carbon sequestration, biodiversity conservation) and therefore justify investments and other support at these levels. Strong disparities were found to occur between the local community level and the higher levels of GIAHS as regards the flow of information, organization, technology and power control. The impacts of these disparities on local communities require further assessment, as also those created at all levels by inappropriate policies and inefficient institutions, globalization and modern technology. The use of the 5 capitals approach was suggested for these impact assessments. A diagram was presented illustrating these relationships and their impacts at different levels, emphasizing the local community level as the entry point and the ultimate focal point and showing the bottom-up and top-down linkages with the higher levels and the horizontal linkages. In further discussion, it was recognized that the present pilot projects do not cover all the categories of systems (e.g. the slash and burn systems of Latin America are not covered). It was also noted that the principles emerging from the case studies of pilot projects were likely to change as the coverage and components of the GIAHS concept widens.

## Group 3 - Creation of a globally, nationally and locally recognized “World Agricultural Heritage Category”

*Chairman: Stuart Harrop.*

*Rapporteur: Sally Bunning*

---

The group noted that legal frameworks already exist in fields similar to that of the GIAHS and discussed the rationale for a new framework vs. that of using the umbrella of the World Heritage Convention. The scope of the WHC was very wide and essentially dealt with the preservation and protection of diverse, mostly non-agricultural heritages. The focus of the GIAHS, on the contrary, was more specifically on agriculture, agricultural biodiversity, poverty alleviation and food security. Its dynamic conservation approach was also different from preservation as meant by the WHC. GIAHS needed, therefore, to obtain special recognition with its own framework and, to this end, develop its own links with the institutions and ongoing processes concerned with its fields of activity.

Among the questions to be addressed by an international framework, the group identified the concept and actual purpose of GIAHS (protection and/or sustainable development? and what for?), the scope of the protection (an area? a site? a system? the existing rights?), the nature and components of the heritage to

be considered (agricultural and cultural) and the criteria determining its international value and the procedure of listing and delisting the GIAHSs. The emphasis placed on the local community by the GIAHS, also created problems for an international framework as each community is usually made of different individuals and social groups with different rights and demands (for example, for agrarian reform). It was therefore necessary to launch an international process capable of averting possible conflicts of interests and influencing national legislations related to the GIAHS. Above all, the GIAHS needed to formulate further its international mandate, agree on standard definitions in the terminology used for the projects and set more clearly its programme priorities. Annex 3 showed a listing of agenda item for the CGRFA, to start this process.

## Group 4 - Organization of a multi-stakeholder management structure for GIAHS programme implementation

*Chairman: Henk Kieft and Ximena George-Nascimento*

*Rapporteur: Frank van Schoubroeck*

---

The group had wide-ranging discussions on the mode of implementation of the GIAHS initiative, particularly on how it should work at local and national levels. It recognized that the programme management structure should be flexible and adapt to the local context by working through existing institutions, using and strengthening their existing administrative and governance procedures. In general, a layered management structure (global, national, meso-level and community) should be adopted with a multi-stakeholder steering process at each level to develop a vision and an organisational set-up for its particular tasks at that level. The multi-stakeholder mechanisms should involve, at each level, the public and private sector organisations concerned, NGOs and academic institutions. Co-ordination between levels should take place through representation from other levels and through a management protocol. The management protocol should ensure that all action levels and actors contribute to enhancing the self-determination of the GIAHS communities; each level get authority to carry out its task without undue interference from other levels, in line with the subsidiarity principle; and all levels hold each other accountable. Technical committees should be set-up to guide the programme at each level.

At global level, the steering committee should meet more regularly to support FAO in giving the programme more operational direction.

As an overall guiding principle, the group also recommended that all stakeholders involved in the programme and all management levels work essentially to improve the living conditions of the GIAHS communities in all the dimensions of poverty alleviation (e.g. DFID/Livelihoods, ESO/DAC, OESO/DAC, FAO-Sustainable Livelihoods Assessment Frameworks). While the above recommendations were generally endorsed in the ensuing discussion of the plenary, it was stressed that flexibility, access and equity of access should be facilitated throughout the different levels of the proposed management structure (for the women in particular). Informal networks should also help in the promotion and implementation of the programme.

It was also recommended that the GIAHS institutional machinery should not be developed at the expense of action in the field and concern was expressed at the potential proliferation of committees.

Finally, it was agreed that the GIAHS required that top-down management habits needed to change radically and bottom-up procedures should be developed, while at the same time promoting both vertical and horizontal cooperation among all levels of the management structure.



## Final session

---

In the closing session of the Forum, Dr. Parviz Koohafkan thanked all the participants for their very rich and substantial contributions to the advancement of the GIAHS and outlined the follow-up of the meeting. The FAO Secretariat of the GIAHS intended to interact further with all those who had joined in the meeting as well as with those invited who could not attend, in the next steps of the programme. The wider membership in the programme was particularly appreciated and encouraging.

The GIAHS needed further help and support and all participants were invited to mobilize support in obtaining the GEF approval of the full-fledged GIAHS Project by next January/February 2007. All efforts will be made on the part of the Secretariat to ensure that the existing pledges materialize and the participants concerned will be kept informed in this respect. Additional resources will be sought for the programme in order to cover more systems and proposals will be invited to this effect. As regards to the policy framework for the GIAHS, it will be further explored by analyzing the existing treaties and other instruments, examining the mandates of international bodies concerned, and commissioning further legal studies. Much will depend on the political momentum created in support of the GIAHS.

Developing a suitable draft instrument is likely to take time and therefore steps are being taken to start preparations immediately. It was clear from the meeting discussion that the scientific underpinning of the programme should be further developed. A research agenda and baseline data should be established for each system and cooperation will be sought to give further scientific guidance to the programme and its individual projects. In closing, Dr Koohafkan reiterated its most sincere thanks to the participants and appealed to each of them to become a “champion” of the GIAHS programme.



## Follow up / Notes of the Forum

---

### *Review of the GIAHS concept, policy and priorities*

The adoption of a “dynamic conservation approach of bio-agri-cultural diversity” has a number of implications. The scope of the GIAHS is significantly broadened beyond agro-biodiversity conservation. A dynamic conservation cannot be achieved without addressing the poverty issues. The self-determination of priorities by the communities may result in a lack of focus of the initiative and multiple demands.

The steering committee of the GIAHS should therefore review the definition and criteria for GIAHS and develop the framework of policies, guiding principles and overall priorities, within which the communities will determine their specific priorities.

The major issue to be decided is whether the GIAHS initiative continues to focus on agriculture and bio-diversity essentially, or becomes a socio-economic development / environment protection programme. Establishing “indicators” and a tentative listing of the concrete results / impacts expected from the GIAHS initiative with a target year, say in year 2012 may help in defining realistically the future scope and priorities of the programme. The use of the 5 capitals method, FAO’s Sustainable Livelihood Approaches, DAC criteria and the DPSIR model in defining priorities should also be clarified.

### *The legal framework*

Further work on a legal framework may raise the political awareness on the GIAHS in the governing bodies of FAO, CBD, WHC-UNESCO and others. If the work of the CGRFA is any guide, it may also take a lot of staff time and divert energies from fieldwork and from achieving impact and concrete results. The legal work may start with desk studies of the existing frameworks, on the notion of heritage, the inception/designation criteria and modalities.

The proposed agenda item and other legal issues for the FAO Council that GIAHS should undertake are already identified and listed. The timetable for this activity is critical, it should start gradually. However,

it may be considered premature to involve intergovernmental bodies in legal discussions on a framework covering 5 systems (in 7 countries) only.

Case studies on national legislation in the GIAHS host countries may be a more useful starting point in parallel with more general desk studies.

### *The management structure of the GIAHS*

An elaborate multi-level structure and a set of management principles (protocol) were proposed at the Forum. At the same time, it was recognized that the management of the programme faces a number of inherent difficulties of governance due to its multi-sectoral nature, the conflicts between customary and state institutions and those between a closer steering of the projects and the desirable self-determination of the communities. For the moment, flexibility and ad-hoc arrangements are desirable.

The priority should be placed on establishing organisational/institutional arrangements at the community level (the weakest and most critical level). The steering capacities at global level should also be strengthened. At national level, the proposed structure is likely to duplicate that of the GEF and possibly others. The proliferation of national steering and technical committees, focal points and coordinators for diverse programmes should be avoided. The multi-level structure management and a set of management protocols may delay the implementation of the important ground activities of GIAHS dynamic conservation. The intervention of too many external actors on the GIAHS sites might be uncontrollable, particularly so if the scope of the GIAHS is broadened (see item 1 above).

### *The associated research activities within GIAHS*

The risk of a proliferation of “visitors” in the GIAHS systems and sites is particularly high in the field of research and should be controlled. Priorities should be set in a research agenda with focus on agro-biodiversity and agricultural practices and traditional knowledge systems. The objectives and modalities of

agro-bio-diversity *in situ* protection should be set out on a stronger scientific basis. It is important to survey the so-called “traditional varieties” and record their uses, environmental requirements.

It is equally essential to investigate the long-term viability of their *in-situ* conservation, their phenotypic and genetic make-up and variability. Their *ex-situ* conservation should be ensured in parallel, otherwise their *in situ* conservation may well prove to be an exercise in futility. Research institutes including CGIAR’s should help in this. Field of research within GIAHS systems and its multi-component nature are too many. Priority should be placed on soil and water management, pest and disease control and post-harvest technologies. Ecosystem studies, anthropological studies, and research on the “black-box” nature of the socio-ecological systems, though desirable and interesting for the long-term management of the GIAHS may take a lower priority, unless local research facilities and the GIAHS site conditions are particularly favourable.

### Socio-economic viability of GIAHS

Further to the identification of the constraints and problems of each system/site (a set of activities must be launched in each system/site to fight poverty and food insecurity and ensure the GIAHS long-term socio-economic viability).

These may include organic farming, “diversity-rich” products, cottage industries and handicrafts, eco-tourism and related GIAHS communities’ capacity building activities, as the local community may choose and decide with the help advisory services and external support. Selected infrastructure, marketing, credit, health facilities (including also micro-credit and telecommunications) may be carefully developed concurrently.

### GIAHS support network development

Several ad-hoc cooperative networks will be developed in connection with the above activities. Network “moderators” should be appointed to ensure that networking activities are monitored and do not get out of hand.

In addition, a communication support programme should be initiated to raise awareness and general public support. Communication material should be developed particularly to enlist further cooperation and support from the policy-makers, donors,

private sector, NGOs, tourism organisations, etc. A careful balance should be achieved between the need for further support and help, and that of preserving the integrity and the self-determination of the local GIAHS communities.



## **Background Papers**

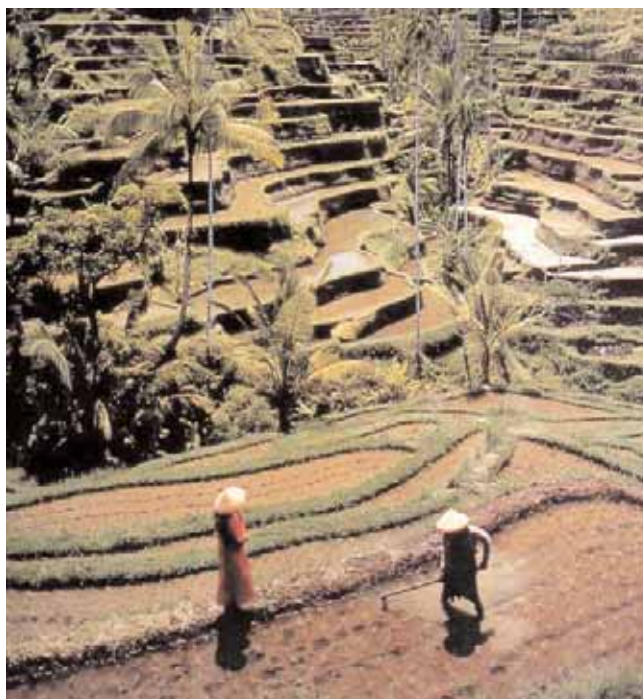
---

# **Conservation and Adaptive Management of Globally Important Agricultural Heritage Systems (GIAHS)**

## The GIAHS Initiative: from concept to implementation

*Parviz Koohafkan*

---



## 1. Rationale

Throughout centuries, human communities, generations of farmers, herders and forest people have developed complex, diverse and locally adapted agricultural and forestry systems. These systems have been managed with time-tested ingenious combinations of techniques and practices that have usually led to community food security and the conservation of natural resources and biodiversity.

These microcosms of agricultural heritage systems can still be found throughout the world covering about 5 million hectares which provide a series of cultural and ecological services to humankind such as the preservation of traditional forms of knowledge systems, traditional crops and animal varieties and autochthonous forms of socio-cultural organizations. These agricultural heritage systems have resulted not only in outstanding landscapes of aesthetic beauty, maintenance of globally significant agricultural biodiversity, resilient ecosystems and valuable cultural inheritance, but above all, in the sustained provision of multiple goods and services, food and livelihood security and quality of life. The wealth and breadth of accumulated knowledge and experience in the management and use of resources is a globally significant resource that needs to be preserved and, at the same time, allowed to evolve.

## 2. Background of the Programme

At the occasion of World Summit on Sustainable Development (WSSD, Johannesburg, 2002), FAO developed and presented a Partnership Initiative on conservation and adaptive management of Globally Important Agricultural Heritage Systems (GIAHS) with the support of Global Environment Facility (GEF) and in collaboration with UNDP, UNESCO, CBD, UNU, IFAD, IUCN, Bioversity International and interested countries, aiming for the recognition, conservation and sustainable management of such agricultural systems and their associated landscapes, biodiversity, knowledge systems and cultures.

The initiative's major target beneficiaries are small scale traditional family farmers, resource poor local communities and indigenous peoples. The initiative shall provide an opportunity for the international community to recognise and support the contribution of small farm holders and indigenous peoples to conservation of genetic resources for food and agriculture, cultural diversity, food security through their own unique agri-cultural practices and management sys-

tems. Likewise, special emphasis is placed on the specific roles of women as custodians and beneficiaries of biodiversity and as protagonists of household food security and environmental sustainability.

Currently, some two hundred systems are identified in different parts of the world including in OECD countries that qualify as Globally Important Agricultural Heritage Systems based on criteria established by the GIAHS Steering Committee. The initiative is being piloted now in seven countries representing five agricultural heritage systems, namely: 1) Chiloe agriculture, Chile; 2) Rice fish agriculture, China; 3) Andean agriculture, Peru; 4) Ifugao rice terraces, Philippines; 5) oases of the Maghreb, North Africa (Algeria, Morocco, and Tunisia). The GIAHS initiative recognises and is centred on the profound inter-relatedness of biodiversity, agriculture, ecology, culture and social organisation and institutions, ethics, local livelihoods security and food sovereignty.

The initiative attempts to mitigate threats to the resilience of GIAHS by supporting farmers and their communities' capacities to continue to manage agricultural heritage systems, with the involvement of national governments, scientists and other stakeholders. It also seeks to support these communities and their governments in developing enabling and appropriate policy environments conducive to their continued existence and which allow for their evolution and development. The lessons learned will serve as basis for creating a World Agriculture Heritage category, in collaboration with other institutions, like CBD, UNESCO and the World Heritage Convention, to guarantee the sustainability of these globally important traditional agricultural systems.

## 3. What are GIAHS ?

**Globally Important Agricultural Heritage Systems** are defined as "*Remarkable land use systems and landscapes which are rich in globally significant biological diversity evolving from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development*".

GIAHS are classified and typified based on its ingenuity of management systems, high levels of agricultural biodiversity and associated biodiversity, biophysical, economic and socio-cultural resources that has evolved under specific ecological and socio-cultural constraints and opportunities. Examples of GIAHS could include the following types:

1. *Outstanding terraced mountain sides with rice and complex agro-ecosystems.*

This type includes remarkable terraced systems with integrated forest use (swidden agriculture/agro-forestry and hunting/gathering), such as rice terraces and combined agro-forestry vanilla system in Pays Betsileo, Betafo and Mananara in Madagascar, the Ifugao rice terraces in the Philippines. This type also includes diverse rice-fish systems with numerous rice and fish varieties/genotypes and other integrated forest, land and water uses in East Asia and the Himalayas.

### *2. Maize and root crop based agro-ecosystems.*

Developed by Aztecs (Chinampas in Mexico) and Incas in the Andes (Waru-Waru around lake Titicaca in Peru and Bolivia), with ingenious micro-climate and soil and water management, adaptive use of numerous varieties of crops to deal with climate variability, integrated agro-forestry and rich resources of indigenous knowledge and associated cultural heritage.

### *3. Taro based systems.*

These are the unique agricultural systems and endemic genetic resources found in Papua New Guinea, Vanuatu, Solomon Islands and other Pacific small islands developing countries.

### *4. Specialised dryland systems including the remarkable pastoral systems.*

These are range/pastoral systems based on adaptive use of pasture, water, salt and forest resources through mobility and herd composition in harsh non-equilibrium environments with high animal genetic diversity and outstanding cultural landscapes. These include highland, tropical and sub-tropical dryland and arctic systems such as Yak based pastoral management in Ladakh, high Tibetan plateau, India and parts of Mongolia and Yemen; Cattle and mixed animal based pastoral systems, such as of the Maasai in East Africa; and Reindeer based management of tundra and temperate forest areas in Siberia, such as Saami and Nenets.

### *5. Ingenious irrigation and soil and water management systems.*

These are the agricultural practices in drylands with a high diversity of adapted species (crops and animals) for such environments: ancient underground water distribution systems (Qanat) allowing specialised and diverse cropping systems in Iran, Afghanistan and other central Asian countries with associated homegardens and endemic blind fish species living in underground waterways; and integrated oases in deserts of

North Africa and the Sahara, traditional valley bottom and wetland management, e.g. in Lake Chad, Niger river basin and interior delta (e.g. floating rice system) and other ingenious systems in pays Bamileke (Cameroon), Dogon (Mali) and Diola (Senegal).

### *6. Complex multi-layered homegardens.*

Agricultural system featuring a complex multi-layered homegardens with wild and domesticated trees, shrubs and plants for multiple foods, medicines, ornamentals and other materials, possibly with integrated agro-forestry, swidden fields, hunting-gathering or livestock, such as homegarden systems in China, India, the Caribbean, the Amazon (Kayapó) and Indonesia (e.g. East Kalimantan and Butitingui).

### *7. Hunting-gathering systems.*

This features unique agricultural practices such as harvesting of wild rice in Chad and honey gathering by forest dwelling peoples in Central and East Africa.

## **4. Outstanding Characteristics of GIAHS**

GIAHS provides valuable good and services at the local and well beyond their borders. Some of the outstanding characteristics of GIAHS are but not limited to:

### *1. Reservoir of biodiversity and associated biodiversity*

A growing body of scientific evidence demonstrates that indigenous and traditional agricultural systems, features a high degree of plant and genetic resources for food and agriculture. GIAHS systems often reflect rich and globally unique agricultural biodiversity, within and between species but also at ecosystem and landscape level. For instance, tropical agroecosystems composed of agricultural and fallow fields, multi-storey farming practices, complex home gardens, and agroforestry plots commonly contain well over 100 plant species per field.

These biodiversity products are used for construction material, firewood, tools, medicines, livestock feed, and more importantly, for human food consumption. This is through practicing traditional agriculture, such as and multiple-cropping systems which supplies food and livelihood to about 1.4 billion subsistence families and communities. Others outlined that most of the traditional agriculture and agroecosystems are located in centers of crop of diversity, and they contain populations of variable biological resources, both domesticated and adapted landraces, as well as wild and weedy relatives of crops. The richness of biodiver-



sity in any form and given condition however, can only be effectively maintained, adapted and conserved with the human management systems that have created it, including indigenous knowledge systems and technologies, specific forms of social organisation, customary or formal law and other cultural practices. Having been founded on ancient agricultural civilizations, GIAHSs are linked to important centres of origin and diversity of domesticated plant and animal species, the in situ conservation of which is of economic importance and global value.

## 2. *Stewards of ecosystems*

A remarkable attribute of agricultural heritage systems is the concept of stewardship as the driving approach to the use of natural assets and services by local communities. The people depending on such landscapes display deeply held historical, cultural, ethical and religious attachment to their habitats. Many indigenous communities attribute spiritual values to the ecosystem as evidenced by community-based rituals and forms of worship. The underlying philosophy of these communities is akin to the spirit which modern naturalists all over the world ascribe to nature and its bounty.

In traditional communities, such as GIAHS, land is seen as finite and infinite milieu, which represents lot of respect and attention not only as provider of food and water, but also as the beginning and end of life. Land and land use are part of a cosmogony – a special reverence for the creator and the creation, which is the basis of a caring relationship such communities have with the environment. There is considerable diversity in the GIAHS, but they share a common attribute of functioning broadly in tune with the diversity of ecology, climate, geography, and natural resource endowments in the form of crop land, pastures, forests, fisheries, or irrigation water. The systems operate as conservation-friendly agricultural landscapes or habitats. GIAHS is based on making use of and optimising beneficial ecosystem functions within the agro-ecosystem and with surrounding ecosystems, including wild habitats. Their preservation is important in a world confronted with a growing phenomenon of land and water degradation and pollution.

## 3 *Socio-ecological landscapes*

GIAHS throughout the world testify the inventiveness and ingenuity of people in their use and management of biodiversity, inter-species dynamics, and more importantly, utilising the physical attributes of the landscape where they live, codified in traditional but evolving knowledge, practices and technologies.

Ingenious agro-ecosystems reflect human evolutionary transitions intimately linking socio-cultural systems with biophysical systems. They use traditional knowledge systems, 'trial-and-error' and experiential learning, insights and innovations. Their ingenuity has resulted in well-balanced agro-ecological systems in marginal, extreme or very specific ecologies, which could not otherwise have sustainably supported human life and agrobiodiversity. These systems are organised and managed through highly adapted social and cultural and customary practices and institutions. These agricultural "landscapes" typically evolve in parallel with their associated "lifescapes". They are characterised by continuous technological and cultural innovations, as well as adjustment of management practices and uses of resources and ecosystems, through their transfer between generations, exchanges with other communities and ecosystems and in response to natural events and to changing social, technological and political context.

## 4 *Body of traditional knowledge*

GIAHS is a set of practices, knowledge, institutions, technologies, skills, traditions, beliefs and values proper to a farming community. The traditional and indigenous knowledge systems employed in GIAHS are foundation and basis of managing the agroecosystem, including processes and functions, to keep maintaining the general ecosystem and landscape integrity.

As such, agricultural system evolved, co-evolved with the human communities, handed down from one generation onto another generation, refined and continuously fine tuned, primarily as a response to the specific natural environment change where they need to gain their livelihood. Thus, agricultural systems in many parts of the world have led to landscape-scale ecosystem variation, and provided mosaics of micro-habitats, that support associated plant and animal communities, which now depend largely on continued management for their viability. In many regions of the world, especially where natural conditions of climate, soil, accessibility and human presence militate against intensification, there still persist agro-ecosystems and landscapes that are maintained by traditional knowledge and practices developed by generations of farmers, forest dwellers, and herders.

## 5. *A natural landscape with aesthetic beauty*

GIAHS have evolved over time specific and highly adapted forms of social organisation through which the ecosystems and landscapes management takes place, and cultural identity is preserved. These indigenous and traditional agricultural systems have

resulted to outstanding landscapes with remarkable aesthetic beauty. Some of these GIAHS landscapes appear to satisfy the objectives of the UNESCO Convention concerning Protection of the World recognised as World Heritage Sites. The Ifugao Rice Terraces of the Philippines is one example of GIAHS and a World Heritage Site. This system is an epitome of an agricultural legacy dated from more than 2000 years ago. The spectacular rice terraces' landscapes allows protection and conservation of significant and important agricultural biodiversity and associated biodiversity, features marvellous engineering systems and innovativeness, promotes tourism, as well as expressing the conquered and conserved harmony between humankind and the environment. The systems is also dubbed as the "Living Cultural Heritage".

#### 6. Cultural diversity

GIAHS have other values beyond production of foods, fibres, maintenance and conservation of plant and genetic resources for food and agriculture, and other provisioning services. These living and evolving systems and communities have kept their distinct identities intact on the strength of unifying values such as nature, family, community, history, and a sense of belonging to their natural habitats. What sets apart the agricultural heritage systems from the UNESCO world heritage sites is a unique feature of outstanding universal value, that GIAHS are not static or frozen in time or space. They represent a living, dynamic, socio-economic, cultural and institutional mosaic of how man has adapted over the centuries to the demands of dramatic advances in human civilisation, while preserving and conserving to this day a rich heritage of customs, livelihood patterns and landscapes.

Their cultural diversity is also a factor which reinforces their heritage characteristics of GIAHS. These systems are bonded by a common thread of distinct identities, language use, ethnicity, aesthetics, and a respect for nature and ecosystem. GIAHS is an agricultural legacy, of not only represent important agroecosystems, landscapes or landmarks of historical value but also living and evolving family farming communities, institutions and ecological and cultural heritage.

#### 5. Threats to GIAHS Continued Viability and Sustainability

Agricultural Heritage Systems, which have evolved as a result of farmers' adaptive and innovative management strategies over millennia, continue to contribute greatly to the food security of indigenous peoples and subsistence farming communities world-

wide, and provide essential environmental goods and services and quality of life well beyond their borders. In spite of their valuable characteristics and their exemplary value for sustainable agricultural development, agricultural heritage systems are under threat. Threats include inappropriate policy, legal and incentive environments; industrialization of agriculture and neglect of diversified systems and local knowledge; low priority given to in-situ conservation; low community involvement in decision-making; and, population pressure and culture change.

The rapidity and extent of today's technological, cultural and economic changes threaten many of these agricultural heritage systems, including the biodiversity on which they are based, as well as their societies. The focus over recent decades on agricultural productivity, specialisation and global markets, and associated disregard of externalities and adaptive management strategies, has led to a relative and generalised neglect of research and development support for diversified, ingenious systems. Pressures are constraining farmer's innovation and leading to the adoption of unsustainable practices, overexploitation of resources and declining productivity, as well as agricultural specialisation and adoption of exotic domesticated species.

This poses a severe risk of genetic erosion, loss of associated knowledge systems and cultures and gaps in transmission of the important global heritage, and can drive the communities into a vicious cycle or poverty and socio-economic destabilisation. Unless these agricultural systems are assisted to counteract these threats, GIAHS will meet the fate of numerous rural communities, which have been dying all over the world in the wake of industrialisation and modernisation.

#### 6. The Overall Goal of the initiative

The overall goal of the GIAHS initiative is to "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements", specifically within agricultural systems.

Further, the programme aims to establish the basis for international recognition, conservation and sustainable management of GIAHS and their associated biodiversity and knowledge systems throughout the world. A "World Agricultural Heritage Category" is expected to be created with specific action programmes in the initial 5 pilot systems, as well as activities to leverage global, regional and national policies

and institutional support.

## 7. Programme Strategy and Approach

In order to provide systematic support to the conservation and adaptive management of GIAHS, the overall project strategy is to make interventions at three distinct levels:

*Global level* – it will facilitate identification, selection and international recognition of the concept of GIAHS wherein globally significant agrobiodiversity is harboured, and it will consolidate and disseminate lessons learned and best practices from project activities at the pilot country level.

*National level* – the programme will ensure mainstreaming of the GIAHS concept in national sectoral and inter-sectoral plans and policies. It will also facilitate capacity building in policy, regulatory and incentive mechanisms to safeguard these outstanding systems and use them as sustainability benchmarks systems

*Local level* – the project will address conservation and adaptive management of agricultural systems by empowerment of local communities and technical assistance for sustainable resources management, promoting traditional knowledge and enhancing viability of these systems.

## 8. GIAHS relevance with the National and Key Global Sustainable Agenda

GIAHS programme will contribute to sustainable development through (i) enhancing the benefits derived by local populations and indigenous peoples from the management, conservation and adaptive management of agricultural biodiversity, natural resources and environmental sustainability; (ii) adding economic value and sharing derived benefits from these systems; (iii) enhancing food security and alleviating poverty in accordance with the Millennium Development Goals (MDGs), the World Food Summit Plan of Action and the National Poverty Reduction Strategies (PRSPs).

The Programme will in particular contribute to the implementation of the Convention on Biological Diversity (in particular Article 8j and 10c on traditional knowledge, innovations and practices of local and indigenous communities), to the United Nations Convention to Combat Desertification (UNCCD), by targeting in particular dryland agro-ecosystems that have demonstrated outstanding resilience and adapta-

tion to extreme climate variability, and to the World Heritage Convention of UNESCO. It will foster the implementation of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGR-FA) and will participate to the assessment of the State of the World's Animal Genetic Resources. It will also contribute to the implementation of Agenda 21 and to the Johannesburg Summit 2002 (WSSD) Plan of Action as part of the International Partnership Initiatives.

## 9. The pilot agricultural heritage systems

During the project development phase of the GIAHS programme, seven pilot countries (Chile, China, Peru, Philippines, Algeria, Tunisia and Morocco) representing five traditional agricultural systems with diverse agrobiodiversity, associated wildlife, cultural practices and facing threats, were identified. These agricultural systems shall be starting point to develop a conservation programme based on adaptive management and the search for economic viability of the system. The programme shall also look onto mitigation of the threats, which these traditional agricultural heritage systems are facing today, by identifying economically, as well as environmentally sustainable strategies for the traditional family farming and rural communities of the GIAHS. General description and features of the systems is as follows:

### 1. Andean Agriculture (Peru)

The Central Andes are a primary centre of origin of potatoes. Up to 177 varieties have been domesticated by generations of Aymara and Quechua in the valleys of Cusco and Puno, not far from the famous Machu Picchu. A long list of cultural and agriculture treasures from the Inca civilization has been carefully preserved and improved over centuries to guarantee living conditions over 4000 metres above sea level.

One of the most amazing features of this heritage is the terracing system used to control land degradation. Terraces allow cultivation in steep slopes and different altitudes. From a range of 2800 to 4500 metres, three main agricultural systems can be found: maize is cultivated in the lower areas (2500-3500 m above msl), potato mainly at medium altitudes (3500-3900 m above msl). Above 4,000 metres the areas are mostly used as rangeland, but can still be cultivated with high altitude crops as well. In the high plateau, around Lake Titicaca, farmers dig trenches (called "sukakollos") around their fields.

These trenches are filled with water, which is warmed by sunlight. When temperatures drop at night,

the water gives off warm steam that serves as frost protection for several varieties of potato and other native crops, such as quinoa.

However, a number of socioeconomic and environmental factors, including water contamination, insecure land tenure and fragmentation of the collective property systems, male out-migration in search of earning opportunities and problems with storage and distribution of seeds of native varieties are posing a serious threat to this unique, culturally and biologically rich environment.

The GIAHS project, in coordination with local institutions and the participation of local communities, will help value these ingenious agricultural technologies to guarantee their preservation, while providing sustainable development conditions for present and future generations of Andean peoples.



## **2. Chiloé Agriculture (Chile)**

The Archipelago of Chiloé, in the south of Chile, is one of the center of origin of potatoes and is an extraordinary biodiversity reserve: its temperate rainforests hold a wide range of endangered plant and animal species. The Chilotes -Huilliche indigenous populations and Mestizo - still cultivate about 200 varieties of native potatoes, following ancestral practices transmitted orally by generations of farmers, mostly women. However, new income generating activities, such as intensive fish farming in the island lakes and

inner sea, are leading to a dramatic out-fluxing of male and female labour from the agricultural sector and, consequently, to the abandonment of traditional agricultural practices.

These changes seriously jeopardize biodiversity conservation activities that are beneficial not only to Chilotes, but also to global genetic biodiversity. The GIAHS project will help to design policies for recognition and conservation of these resources in which rural and indigenous communities play an active role and are recognized as the main custodians of this treasure of humanity.



## **3. Ifugao Rice Terraces (Philippines)**

The ancient Ifugao Rice Terraces (IRT), features not only highland mountain ecosystem but as well as the ingenuity of the Ifugaos and a remarkable agricultural farming system which has retained the viability as well as the efficacy of the 2000 year-old organic paddy farming. The continued existence and viability of the rice terraces is a manifestation of strong culture-nature connections, marvellous engineering systems, innovativeness and determined spirit of the Ifugaos to maximise use of the mountainous lands for food production.

The rice terraces are supported by indigenous knowledge management of *muyong*, a private forest that cap each terrace cluster. The *muyong* is managed through a collective effort and under the traditional trib-

al practices. The communally managed forestry area on top of the terraces mostly contains about or more than 264 indigenous plant species, mostly endemic to the region. The terraces form unique clusters of micro-watersheds and are part of the whole mountain ecology. They serve as a rainwater and filtration system and are saturated with irrigation water all year round. A bio-rhythm technology, in which cultural activities are harmonized with the rhythm of climate and hydrology management, has enabled farmers to grow rice at over 1000 metres. Aside from food production, the IRT paddy farming allows protection and conservation of significant and important agricultural biodiversity and associated landscapes including promotion of tourism through its aesthetic value. In 1995, five terrace clusters in the Ifugao province were declared UNESCO World Heritage Sites because their spectacular landscapes expresses conquered and conserved harmony between humankind and the environment. The Ifugao Rice Terraces have also dubbed as a "Living Cultural Heritage Site".



#### **4. Oases of the Maghreb (Algeria, Morocco, Tunisia)**

The oases of the Maghreb region are green islands flourishing in a constraining and harsh environment. They are home to a diversified and highly intensive and productive system, which has been developed over millennia. Sophisticated irrigation architectures, supported through traditional local resource-management institutions which ensure a fair water distribution, constitute a crucial element of the oasis systems.

Dominated by the date palm, intertwined with trees and crops, these ancient systems produce a surprising variety of fruits and vegetables, cereals and forages, medicinal and aromatic plants. The palm groves offer shade and lower the ambient temperature, mak-

ing it the best place to live in the Sahara and an important place of recreation. The systems of production and irrigation and the culture of the oases vary between the different locations in correspondence to their environment. There are oases in continental, mountainous, as well as in littoral areas. With their rich diversity these oases systems constitute an agricultural and cultural heritage.



#### **5. Rice-Fish Agriculture (China)**

In Asia fish farming in wet rice fields has a long history. A Chinese clay plate dating to the Han Dynasty 2000 years ago shows a fish swimming from its pond into a rice field. Ecological symbiosis exists in the traditional rice-fish agricultural system: fish provides fertilizer to rice, regulates micro-climatic conditions, softens the soil, disturbs the water, and eats larvae and weeds in the flooded fields; rice provides shade and food for fish. Furthermore, multiple products and ecological services from the co-ecosystems are beneficial to local farmers and the environment. The high quality food of fish and rice are helpful to maintain farmers' nutrient and living standard: the reduced cost and labour increases the productive efficiency, and, especially by reducing the use of chemical fertilizers, pesticides and herbicides for insect and weed control, helps in agrobiological conservation and field environmental protection. The rice-fish system in Longxian village of Zhejiang province demonstrates an ingenious approach to generating ecological, economic and social benefits through encouraging essential ecological functions.



## 10. Justifications and Benefits that could be derived from the initiative

The full scale global GIAHS initiative will be implemented for a 5 to 7-year period. It is expected to generate the following outcomes:

- An international enabling policy environment and institutional support for the recognition, conservation and adaptive management of GIAHS;
- Improved knowledge and understanding of GIAHS and their associated biodiversity, knowledge and management systems;
- A data base for information sharing and monitoring purposes;
- Enabling national policy and legal environments for the conservation and adaptive management of GIAHS;
- Conservation and adaptive management measures in selected priority pilot systems securing the sustained provision of local, national and global ecosystem goods and services;
- Institutional arrangements for the collaborative management of GIAHS between governments, customary groups and other stakeholders;
- Improved capacity of national and local institutions (government, customary institutions and civil society) to address the issues of GIAHS;
- Enhanced economic benefits through innovative initiatives (niche markets, ecotourism etc.);
- The GIAHS pilot experience and approach are disseminated and mainstreamed in other systems and countries.

### GIAHS Programme Targets

Major target beneficiaries are local communities and indigenous peoples. Special emphasis will be placed on the specific roles of women as custodians

and beneficiaries of biodiversity and as protagonists of household food security.

Ultimately a long- term open ended programme is envisaged that could encompass 100 to 150 Globally Important Agricultural Heritage Systems worldwide.

### Today and Onwards - Other systems and sites are yet to be identified

Agriculture Heritage Systems can be found all over the world. Characteristically, these systems are rich in agricultural biodiversity and associated wildlife and are important resources of indigenous knowledge and culture. In accordance with internationally accepted criteria, FAO in collaboration with other institutions, are constantly identifying other potential GIAHS systems and sites and help in building a network of and between agricultural heritage systems all over the world.



# **A Scientific Conceptual Framework and Strategic Principles for the GIAHS Programme from a Social-Ecological Systems Perspective**

Patricia Howard

---



## Summary

Thank you, Mr. Koohafkan, for inviting me to present today, and I do so on behalf of both myself and my colleagues, Dr. Puri and Dr. Smith. Ladies and Gentlemen, esteemed colleagues: The time has come for GIAHS. Over most of the last four hundred years, indigenous peoples and ethnic minorities across the globe living in rural, subsistence societies have been attempting to adapt to a vastly changing globe. Many have been subjected to *what we recognize with hindsight* were brutal forms of colonialism. At the same time as their natural resources and labour were extracted from them, these people were often characterized as 'primitive.' Many such societies were in fact seriously destabilized or simply disappeared.

However, in many places, such as in the Peruvian Andes, in parts of Indonesia and the Philippines, in the extreme North of North America, in the Yucatan, in mountainous areas of Nepal, in the Indian tropics, in outer Mongolia, in the deserts of Northern Africa, colonialism largely failed to very substantially alter their ways of life. However, as colonialism died out barely a generation ago, many of these same peoples were then subjected to the imperatives of 'modernization,' including the need to industrialize, to generate surpluses for rapidly growing urban populations, for foreign exchange to pay for the excesses of new elites and the appetites of the North for tropical products, so that the extraction of raw materials from these peoples' territories increased. In the effort to transform agriculture through Green Revolution technologies, their production systems were often characterized as 'backwards' and 'low yielding,' and at worst as 'environmentally degrading'. The people themselves were seen to be in need of assimilation and of development support, so that they could eventually become equal to the educated citizenry of their own capitols or of the North. Even as the 'decades of development' lost impetus and they accompanying ideologies began to die out, with the emergence of integrated rural development and anti-poverty approaches, most of the people living in rural subsistence societies have been portrayed as the 'world's poor', who are in dire need of the benefits of Western science and of global economic growth. Underpinning this, the idea still prevails that such people's cultures and production systems are impediments to progress, including to the eradication of poverty.

Today, with the realization that global markets largely fail to reach or support many of the worlds' 1.4 billion rural subsistence families, and with the realization that global technological solutions such as modern

varieties and chemical inputs probably do more damage than good to their ecosystems, diets and productivity, a very strong new current of thinking has emerged. One could in fact argue that these people have now become globally important – it has been discovered that they conserve the vast majority of the world's valuable agrobiodiversity and agroecosystems. It is even being realized that they contain a wealth of resilience in the form of diverse cultures, languages and knowledge. This change is coming in large part due to the struggles of these same peoples to retain their ways of life and to defend their human rights. It is also emerging because many are coming to realize that, in spite of our vast wealth of scientific knowledge, we still seem to know very little about how to live in and with the natural world. We are facing a very large number of serious challenges and very probably crises in the 21<sup>st</sup> century: human induced climate change, energy and water crises, deforestation, desertification, soil erosion, pollution, global biodiversity loss, global disease outbreaks, global conflicts, and, even possibly, the loss of the resilience of our ecosystems that ultimately guarantees the continuity of the human race as we know it.



At this moment, then, we are beginning seriously to wonder whether the 'end-point' of 'development' toward which we have been racing might not be the wrong one. We look around, and we ask ourselves: perhaps we have been trying to leave far behind us things that in fact are extremely important: belonging to a culture and to a particular place, having good social relations based on mutual support rather than on pure



competition, and having a close relation with the natural world of which we are undeniably, and desirably, a part. At a global level, we realize that we need to retain the tremendous adaptive capacity, knowledge, and cultural resilience that have allowed the human race to come to occupy and thrive in virtually every ecosystem on earth over a very long period of time. GIAHS is a programme that arises not only from our consciousness that places and things of great beauty, harmony, and intrinsic value are likely to disappear: GIAHS arises from our own recognition of the need to maintain options for the human race, in case our great experiment of 'development' fails. Ladies and Gentlemen, I cannot synthesize in the 10 minutes that I have left how to conceive of GIAHS. What I can say is that GIAHS requires a very different way of thinking, and a very different approach to those that conventional development thinking and conventional science have offered. To start with, we need a holistic approach. GIAHS cannot be characterized as agricultural systems or ecosystems, they are not places or practices, they are not people, and they are not ideas.

They are *systems* that are made up of the interaction of all of these things – people, places, biological organisms, practices, and ideas. These systems are not the product of industries, of markets, of science, of inventors, policies, ministries, development agencies, or NGOs. They are the product of cultural evolution – that is, of the cumulative knowledge, experience, ideas, and ways of organizing society that have been built up and adapted over centuries or even millennia. They represent above all the ways that people have met all of their cultural and material needs on the basis principally of local resources over time. We call these *social-ecological systems*, because this term best captures the co-evolution of humans and nature – how humans have shaped the natural world and developed organisms to meet their needs, and in turn how human culture, including religion, values, norms, and social relations have been shaped by the ecosystems in which they live.

These systems are not 'primitive' or simple. They are extremely sophisticated and complex. These people may be illiterate but they certainly are not ignorant: it takes an average person living in such a society at least a third of a lifetime to accrue the minimum knowledge necessary just to support a household, and a specialist (for example, in medicines, or in the diversity of specific crops, in religion or a political position) may require two-thirds of a lifetime to learn what she or he must know to be considered as truly learned and capable. They are based upon a very complex set of laws and behavioral norms, as well as webs of social rela-

tions. What if we did not have markets to tell us how to procure and exchange goods? People in these societies generally don't, and yet they have managed not only to procure and exchange goods within their social-ecosystems, but as well with nearby and far flung peoples. People in these societies generally don't have written legal codes, but they do know who has access to what, when, and how, and they pass these rights and duties along when people die; they also have managed their common resources so that these are not over-exploited by the few, and provide the means of subsistence for virtually all people within them and, at least until recently, on an environmentally sustainable basis. They don't have access to laboratories, or to GIS, or to libraries, or the internet, and yet they continually experiment, innovate, and adapt their knowledge, techniques, and practices to changing environmental, economic, and social conditions.



They don't have formal education and yet manage to transmit the knowledge accumulated over centuries to their children. They don't have museums, or heritage laws, or zoning laws or planning ordinances to preserve their buildings, temples, and sacred groves, and yet they manage to transmit their cultures, their arts, architecture, and sense of aesthetics generation after generation, changing these, it is certain, but without losing their sense of identity or cultural continuity over time. We don't mean to romanticize rural subsistence social-ecological systems.

They are rife with difficulties and dilemmas, challenges, conflicts, inequalities, and therefore are continually changing, just as are all human societies. What they can be characterized as, however, is resilient, and unique. They have evolved nutritionally adequate and culturally significant ways of producing, procuring, and consuming food and virtually every other necessity of life. They can also be characterized, like virtually every other ecosystem on the planet, as under threat.

GIAHS-type societies are subject to the forces of homogenizing globalization, or what I and some others call 'de-localization'. De-localization means the de-linking of production and consumption from local environments. It means that most humans no longer know what the ecosystemic or social consequences are of their production and consumption patterns, since these consequences are for ecosystems and peoples who may be very far away.

We consume shoes and microchips and wood furniture and shrimp without knowing how the people who produce them live or how the ecosystems that sustain them are changing, and therefore, the most concerned among us cry for 'labeling' and 'traceability'. De-localization means a very serious loss of control because, in fact, *no one* is capable of knowing what the consequences of our mass production and consumption decisions are. GIAHS-type systems are undergoing the same loss of control, and many of the drivers of this loss of control are very similar across many of these systems. But each rural subsistence social-ecological system is still very local, and the ways in which they experience such drivers, and the ways in which they deal with them, are also local.

In spite of the fact that the drivers may be similar – population growth, loss of control over land and other resources, market penetration and homogenization of production and consumption, loss of traditional knowledge, etc. – the means to maintain system resilience will be very different. I think that the most important thing that I can say to you, ladies and gentlemen, is that no one who does not belong to these cultures, to these systems, can re-engineer them, conserve them, or otherwise adapt them. We cannot even imagine that outsiders could possibly have the knowledge, or skills, or motivations to maintain dozens to hundreds of local varieties of a single crop, or identify, process and administer hundred of plant species as medicine. Most outsiders can't even speak their languages.

The only people who have the knowledge, skills, motivations, and perseverance to do so are the people who have inherited them and who are living their lives trying to pass them on to their heirs. We are not the proprietors of GIAHS. GIAHS are global heritage only in the sense that I already laid out above – they represent the resilience, and best hope, for much of the human race. Otherwise, GIAHS are LIAHS – locally important agricultural heritage systems, and very possibly they will only remain such if we, as outsiders, are able to support the people who live in these systems to maintain the resilience of their cultures and their ecosystems given so many negative drivers of change.

We have no recipes for this – everything that we bring to these systems from outside, whether it be tourists, or niche markets, or agricultural extension, or a thousand good intentions – can have unexpected and unintentional repercussions.

A change in one part of the system will very likely have repercussions throughout the system, and these repercussions are also very likely to involve trade-offs, and are also likely to be far-reaching. The very best that we can do is to seek to complement the knowledge of these people with scientific and practical knowledge, to help them to identify their problems, the underlying drivers of change, and a range of potential options that can help to make their systems, and their lives, more resilient both in terms of human and in terms of ecosystem welfare, and to support them in the attempt to analyze and understand the possible trajectories of change given different options. Only once this is done can we actually begin to support them to pursue such options. Globally, and within each country, the other very best that we can do is to attempt to change those processes that are *devaluing* these people and their resources, or wresting these people's control over their own futures away from them.

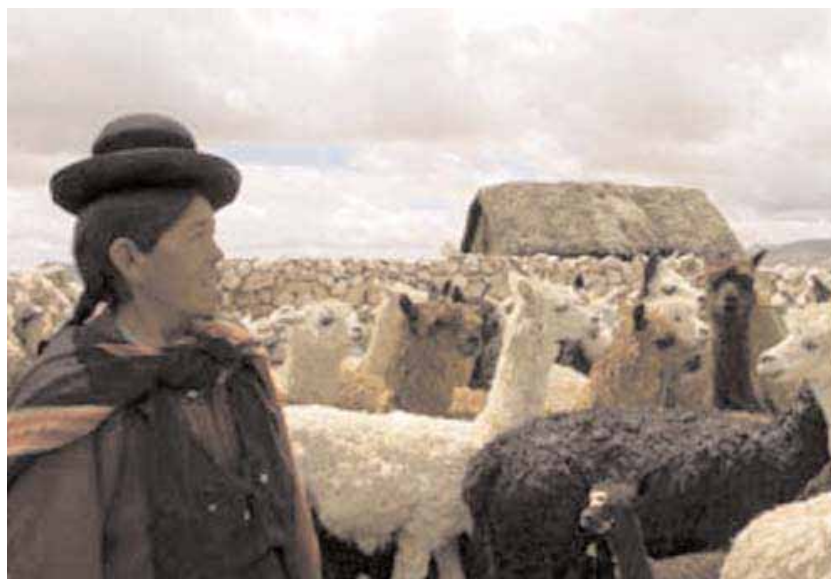
We can best address poverty by dealing with its most pervasive and destructive dimensions: social exclusion and disempowerment. Our approach to GIAHS must be short-term, but we cannot, and must not, rush to intervene because 'development aid' demands that 'results' be evident in the short-term. Interventions should not occur before it is clear that their repercussions are fairly well understood, and before people are absolutely committed to, and understand, such change.

On the other hand, our approach to GIAHS must be far-sighted, if what we want to do is to enhance their resilience over time. Hinging the future of GIAHS on global eco-tourism or on distant niche markets for agricultural products might seem like a good idea in the short term but, if the energy crisis or geo-political conflict send fossil fuel prices skyrocketing, then the source of 'resilience' for GIAHS may suddenly disappear. The ability to think ahead is not the strongest point of the world's current political systems, but it needs to be an important characteristic of the GIAHS programme. Ladies and gentlemen, with this I conclude. I would like to extend to you a very warm invitation to attend this afternoon's session where my colleagues, Dr. Raj Puri and Dr. Laurajane Smith, will be more systematically presenting the GIAHS conceptual framework and where you will all have ample opportunity to discuss, comment, critique and improve upon this framework.

## GIAHS and Farmers Innovation

*Miguel A. Altieri*

---



## Summary

Throughout centuries, generations of farmers, herders and forest people have developed complex, diverse and locally adapted agricultural and forestry systems, managed with time-tested ingenious combinations of techniques and practices that have usually led to community food security and the conservation of natural resources and biodiversity. These microcosms of agricultural heritage can still be found throughout the world covering about 5 million hectares, providing a series of cultural and ecological services to humankind such as the preservation of rural unique landscapes and agrobiodiversity, including traditional forms of farming knowledge, local crop and animal varieties, and autochthonous forms of socio-cultural organization. These systems however are rapidly shrinking, victim to modernization and other technological and economic changes.

Once these systems disappear, their unique agricultural legacy and associated environmental and cultural local and global benefits will be lost forever.

In order to prevent the furthering of this process, the Food and Agriculture Organization of the United Nations (FAO) and other international, national and local partners have joined forces to raise world-wide recognition of the importance of these systems for local/global biodiversity conservation and ensuring of food security and have initiated a program for mobilizing human and material resources in various countries, to dynamically conserve and manage such biodiverse and culturally based systems sustainably. The project Globally Important Ingenious Agricultural Heritage Systems (GIAHS) will initially focus on 10 selected sites located in several countries of the developing world. The values of such sites not only resides on the fact that they offer outstanding aesthetic beauty, are key in the maintenance of globally significant agricultural biodiversity, include resilient ecosystems that harbor valuable cultural inheritance, but also have sustainably provisioned multiple goods and services, food and livelihood security and quality of life for millions of people. In addition such agricultural sites offer promising models of sustainability as they are well adapted to their particular environment, rely on local resources, are small-scale and decentralized, and tend to conserve biodiversity and the natural resource base.

Therefore, these systems comprise a Neolithic ecological and cultural legacy of considerable importance to humankind and it is imperative that they be considered globally significant resources to be protected and preserved as well as allowed to evolve. This should be done regardless of the fact that values of

indigenous people may be different from the global community despite the fact that species and habitats valued by local people have global significance. Much of the concern for the global community is the alarming loss of biodiversity and associated environmental services; while for local communities such issues may also be important, their real concerns, needs and perceptions usually remain hidden to outsiders.



Inherent to the concept of GIAHS is an acknowledgement that indigenous knowledge has intrinsic merit, and holds development potential. Case studies reveal that there exists a diversity of local and traditional practices of ecosystem management, including systems of biodiversity management and soil and water conservation. Many authors talk about rural populations as being *inventively self-reliant*, and that resource-poor farmers, *continuously experiment, adapt and innovate*. These notions are crucial if we are to think of GIAHS within a framework of “dynamic conservation”. Innovation, indeed, is the dynamic that leads to the development of tradition. It could boldly be premised that rural peoples in GIAHS hold many of the potential answers to the production and preservation challenges affecting their rural landscapes.

Recognizing this fact, is strategic for stimulating the innovative processes inherent within local communities. The GIAHS process must accept that there are real possibilities of building on local traditions and environmental knowledge instead of relying on often inappropriate technologies from outside.

Undoubtedly, the ensemble of traditional crop management practices used by many resource-poor farmers represents a rich resource for modern workers seeking to conserve GIAHS. In a given GIAHS system, farmers may use a diversity of techniques which tend to be knowledge-intensive rather than input-intensive, but clearly not all are effective or applicable, therefore modifications and adaptations may be necessary.

But what modifications should be made? The challenge is to maintain the foundations of such modifications grounded on farmers' rationale and knowledge. The challenge for agroecologists and other professionals involved in the GIAHS process is to be able to recognize the local practices that have ecological function or a role in resource management. A case in point is biodiversity conservation, which in many cases is a consequence of traditional management systems and not an objective and practice in itself. So the focus of the work should be more on how such practices contribute to biodiversity enhancement rather than on trying to figure out how farmers preserve biodiversity. It is not a matter of romanticizing traditional agriculture or to consider development per se as detrimental, but if the interest lies in "improving" GIAHS sites through a dynamic conservation process, researchers must first understand and build on that agriculture that is to be changed, rather than simply changing or replacing it.

Most local farmers have intimate knowledge about the ecological forces that surround them, however their experience is limited to a relatively small geographical and cultural setting. A given practice documented from one social group may not be present in the next social group. Such intimate local experience, cannot be matched by generalized knowledge of the ecologist, yet sophisticated training of the ecologist cannot be matched by the experiential knowledge of local farmers, despite the fact that ecologists may be unable to appreciate the rich texture that comes from detailed knowledge of local farmers. This is why a "dialogue of wisdoms" is necessary among GIAHS professionals and traditional farmers. In fact it is an essential prerequisite to the development of a truly ecologically sound and culturally sensitive GIAHS process that the people who own the knowledge be part of the planning process. Local skills can be mobilized through participatory development approaches, combining local farmer knowledge and skills with those of external agents in the design and diffusion of appropriate farming techniques.





# **Globally Important Agricultural Heritage Systems**

## An examination of their context in existing multilateral instruments

*Stuart R. Harrop*

---



The report analyses the international legal and policy matrix to assess the level of existing support for GIAHS and to ascertain the gaps in that support. This summary comprises a drastic paraphrase of the parent document.

## 1. Conservation

Many international legal and policy instruments deal with the protection of biodiversity and heritage in terms that could include GIAHS operations. There has been a noticeable trend during the last 15-20 years to protect and preserve traditional practices that conserve biodiversity. This is not just evident in new instruments but the trend has also been incorporated in the functioning of older conventions, such as RAMSAR, that are now developing guidelines and making policy decisions in this area. Therefore, it is possible to construe general support for GIAHS within these instruments.

### Policy Instruments

Some paraphrased examples of policy support include:

#### Agenda 21

Support is evident in a number of clauses throughout the chapters. A pertinent example is Chapter 32 which, *inter alia*, acknowledges indigenous and other rural families as stewards of natural resources.

#### Forest Principles

The principles urge support for indigenous peoples living in forests, the provision of an economic stake in forest use, the establishment of appropriate land tenure arrangements and equitable benefit sharing in relation to traditional knowledge.

#### Johannesburg Declaration on Sustainable Development

General support is extensive throughout the declaration. Paragraph 40(r) is particularly relevant to GIAHS in that it promotes *the conservation, sustainable use and management of traditional and indigenous agricultural systems and [the strengthening of] indigenous models of agricultural production.*

#### International law

The conventions that are relevant in this field

also provide extensive, potential support: some are referred to herein.

### The Convention on Biological Diversity

Articles 8(j) and 10(c) of the CBD include the following mandates:

*.....Respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity.... (8(j)) and*

*Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements (10(c))*

These provisions would seem to directly support GIAHS. Indeed, there is potential for the GIAHS concept to be specifically established in a protocol developed pursuant to these clauses. However, whereas GIAHS examples do support biodiversity they also support agricultural biodiversity. At times there can be conflicts that arise between the mandate to preserve pristine biodiversity and human-influenced biodiversity (and the appurtenant culture, heritage and traditions that are linked thereto) especially where they subsist in close proximity and can thus be seen to be in conflict. (As with the close proximity of primary and secondary forest biodiversity in shifting cultivation systems prevalent in many key rainforest zones.)

### RAMSAR Convention

The convention refers to the human relationship with the environment only in its preamble. However, it has developed *Guidelines for establishing and strengthening local communities' and indigenous people's participation in the management of wetlands* and *Guiding principles for taking into account the cultural values of wetlands for the effective management of sites.* Both these documents would, to an extent, support GIAHS examples in wetland areas.

### World Heritage Convention

The WHC's Operating Guidelines were amended in 1992 to permit the inclusion of *World Heritage Cultural landscapes* on the World Heritage List and increasingly the nominations for this category include agricultural sites. A number of examples of these types of landscapes would also be GIAHS candidates. However, the need for *outstanding universal*



value, in the context of the WHC criteria could limit the GIAHS sites that can be protected within the WHC. Further, it must be borne in mind that the volition and mandates that drive the WHC are not the same as the purposes of GIAHS.

### **UNESCO's Man and Biosphere Programme**

MAB is not based on the foundation of a treaty or a convention, nevertheless it appears to operate from a comparable point of strength. It seeks to preserve, *inter alia*: *ingenious land-use practices which do not deplete the natural resources* in Biosphere Reserves which are described by MAB as *areas where such peoples can maintain their traditions, as well as improving their economic well-being through the use of culturally and environmentally appropriate technologies*.

The potential for support of the GIAHS concept is thus evident. Further, the system of zoning deployed would lend itself well to the GIAHS concept particularly where there are conflicts between the volition to protect human influenced and "natural" biodiversity. However, the emphasis in GIAHS is different in that the central core zone will always be the place in which the human interaction with the environment is emphasised. Whereas MAB biosphere reserves tend to operate with a core zone in which human interference is more or less eradicated.

### **Other instruments**

GIAHS is also supported from the perspective of land use and conservation by incidentally related instruments such as: The Convention to Combat Desertification and The international Treaty on Plant Genetic Resources for Food and Agriculture.

### **Multi protection**

Many protected areas are protected by more than one regime. Some existing potential GIAHS sites may already possess a level of protection from WHC, MAB and also RAMSAR. There may be a need for GIAHS to establish joint ventures with these institutions to jointly designate and create management plans for such sites.

### **General**

Support is extensive within conservation instruments but the emphasis of GIAHS is on agricul-

tural biodiversity and heritage. In some cases biodiversity preservation initiatives would work in tandem with the GIAHS objectives but in others there could be conflicts especially in areas where the traditional perspective has been to exclude human activities from core protected areas. GIAHS cannot be restricted to secondary buffer zones. To do so would compromise the importance of these agricultural systems. The concept perceives the GIAHS operations as paramount and a GIAHS protected area would secure that the main, active interface of humans and the environment would take place in the core zone itself.

Therefore, to establish GIAHS effectively, and give it equal strength to existing institutions, it needs to be supported by a policy or legal instrument.

## **2. Land Tenure, the laws of indigenous and rural communities and Human Rights**

### **Customary laws**

The customary laws of GIAHS communities assist to support the GIAHS operations and are embedded within the culture and heritage that constitute fundamental components of GIAHS. A number of instruments support the persistence of these laws subject to fundamental protections for community members in the field of human rights. The most important instrument in this field is the International Labour Organisation Convention 169. Article 8 asserts the right of the peoples affected by the convention to retain their laws and institutions so long as *these are not incompatible with fundamental rights defined by the national legal system and with internationally recognised human rights*

### **Land Tenure**

GIAHS land practices invariably involve indigenous or rural communities working in a traditional manner often in ancestral lands. Clearly there will be a need for national law to protect the sites on which GIAHS takes place through designations to limit the activities thereon and through gradations of protection in zones (core zone, other traditional use zones and a surrounding protective buffer zone). On a more controversial note, there may also be a need to robustly deal with land tenure issues in respect of GIAHS lands in order to permit the practices to continue in a dynamic manner both in the directly cultivated areas and in the transitional zones that support the GIAHS communities. This is a complex and sensitive subject often avoided by existing laws dealing with conservation and

protected areas. Article 8(j) CBD, by example, confirms the need to involve indigenous peoples as stakeholders in conservation issues. However, it avoids committing to the unequivocal return of ownership in ancestral lands to indigenous peoples. There are obvious reasons why the CBD does not deal directly with the issue. There are difficulties resulting from the conflicting interests in range states between indigenous claims, the claims of other stakeholders and also governmental interests in mineral, forestry, fisheries and other natural resources in and on ancestral territories.

Further, in terms of biodiversity preservation the trend is often to exclude humans from protected areas whereas the reverse will be true for GIAHS sites making it all more the more important to address land tenure. Other instruments involved with the rights of indigenous peoples go much further but still may in some respects fall short of the grant of full tenure partly because the rights recognised by indigenous peoples may not conform to contemporary legal rights as defined by the prevailing regime within the range state. However, ILO 169 is relatively forthright. Article 14.1 states *that the rights of ownership... of [GIAHS communities] over the lands which they traditionally occupy shall be recognised. In addition, measures shall be taken ... to safeguard the right of the peoples concerned to use lands not exclusively occupied by them, but to which they have traditionally had access for their subsistence and traditional activities. Particular attention shall be paid to the situation of nomadic peoples and shifting cultivators in this respect.*

### **Access to Natural Resources**

In relation to access to natural resources the convention protects the rights of some GIAHS communities in their ancestral territories:

***The rights of the peoples concerned to the natural resources pertaining to their [ancestral GIAHS] lands shall be specially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources. (15.1)***

However states may retain...

*... the ownership of mineral or sub-surface resources or rights to other resources pertaining to lands. (e.g. Oil, coal, timber, etc.) (15.2)*

### **Right to development**

Finally ILO 169 ensures that indigenous and traditional peoples in GIAHS communities are not

restricted by the GIAHS designation in that Article 7.1 ensures that GIAHS communities *have the right to decide their own priorities for the process of development as it affects their lives, beliefs, institutions and spiritual well-being and the lands they occupy or otherwise use.* In response to this a GIAHS instrument would need to deal with both the admission of sites and communities to the GIAHS designation and also the manner in which designation may be removed. In so doing the instrument would need to deal with the disentangling of obligations relating to ownership of traditional knowledge and other matters.

A fundamental issue also arises in this context. Article 7.1 ILO 169 permits traditional peoples to determine how they wish to accommodate the possibilities that development might bring to them. However, the concept of GIAHS imputes some preservation of tradition. Balancing the drastic metamorphoses that development might bring with this need to preserve and maintain knowledge can produce conflicting mandates. Consequently there is an urgent need to clarify the extent to which GIAHS as a concept is able to support different levels of change. Whereas all traditional knowledge is dynamic, and change itself has been the prime creator of the ingenious aspects of the practices, there is a point at which change is no longer an evolutionary dynamic but has become a force with a volition of its own capable of eroding the practices completely. GIAHS must address the dilemmas that come with development before embarking on the construction of detailed regulatory engineering.

### **3. Intellectual Property Rights/Traditional Knowledge**

The issue of the relationship between traditional knowledge (TK) and intellectual property rights is well documented and there are no special characteristics of GIAHS TK that would differentiate it from the general issue. Certain points have been underlined in the analysis.

#### **Archiving**

Traditional languages and cultures, the vehicles of TK, are disappearing rapidly. In order to provide a solid foundation for GIAHS it would be wise to systematically organise the archiving of GIAHS TK in both the language of origin and in appropriate contemporary languages. The dynamic nature of TK will require that the process of archiving is ongoing.

By reducing oral GIAHS knowledge to formal media a basis for controlled knowledge sharing is available.

Further, attempts to patent TK, in jurisdictions where oral prior art is not recognised can be frustrated.

Article 8(j) CBD supports this whole process, in its reference inter alia, to the obligation to *preserve and maintain knowledge*.

### **Access to genetic resources/TK**

Article 15 CBD re-affirms that control over access to genetic resources rests with the range state and requires that access to genetic resources shall be subject to the *prior informed consent of the Contracting Party providing such resources*.

The convention does not go beyond the veil of the state and require that peoples within also play a part in the granting of such access. However, many of the national laws implementing this provision are providing for the stakeholders in such resources and appurtenant knowledge to participate in the process of granting access. In respect of GIAHS communities it is imperative that they are expressly and primarily empowered to grant or refuse such consent in relation to GIAHS knowledge and the resources.

### **Benefit Sharing**

The principle of equitable benefit sharing in relation to the use of genetic resources/TK is well established in Article 15 CBD and elsewhere. For GIAHS it is recommended that the lead in paragraph 44(o) of the Johannesburg Declaration on Sustainable Development is followed whereby states are urged to: *negotiate ..... within the framework of the Convention on Biological Diversity, bearing in mind the [Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilisation] an international regime to promote and safeguard the fair and equitable sharing of benefits arising out of the utilization of genetic resources*.

### **The International Treaty on Plant Genetic Resources for Food and Agriculture**

The PGRFA prescribes measures to protect Farmers' Rights including protection of traditional knowledge in genetic resources and participation in equitable benefit sharing for agricultural/food use. To an extent GIAHS TK could be protected by the provisions of this treaty. In addition it prescribes a system for sharing of TK, with concomitant benefit sharing through, inter alia, the device of the standard material transfer agreement. The system would, in part, provide

a useful vehicle for the pooling and sharing of GIAHS TK.

### **TRIPS/The conflict between TRIPS and CBD**

To enable TK to be protected, and counteract what has been termed *bio-piracy*, differential treatment of knowledge/intellectual property holders may need to take place. The framework-based principles in the CBD aim to assist in this, however, they do not necessarily conform to the precise provisions in the WTO's TRIPS agreement. The difficulties are also compounded by the strength of the non-traditional intellectual property regime deployed in industrialised societies against the comparative weakness of societies operating along traditional lines. The matter encompasses GIAHS TK but also many other interests. It is being examined in the context of The Committee on Trade and Environment and pursuant to the Doha Declaration (within the TRIPS Council). One way in which matters can move forward is a further and constructive development of the provisions in Article 27.3(b) TRIPS which permits WTO members to operate a *sui generis* system to protect plant varieties (although some TK relates to animal use). It is recommended that the GIAHS project retains a watching brief on these discussions and seeks to be represented, perhaps through a proxy organisation, within the debates.

### **WIPO and Traditional Knowledge**

*In relation to technical intellectual property matters Paragraph 44(p) of the Johannesburg Declaration on Sustainable Development encourages the successful conclusion of existing processes under consideration by the Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore of the World Intellectual Property Organization. WIPO is perfectly placed to deal with all the other issues equitably and in a manner that should promise a holistic solution. It is a forum that could provide the solution to the problems faced by GIAHS and other TK.*

## **4. International Trade Regulation**

International Trade is relevant to GIAHS in a number of respects. Where species traded or purported to be traded are listed on CITES appendices their treatment within CITES requires examination and beyond that the wider implications of the multilateral trade regime operated by the WTO are relevant.

## CITES

In order to support sustainable projects which nevertheless deal in the international sale of otherwise endangered species CITES has been developing split-listing regimes based on sustainably ranched species. Thus the wild species may be in Appendix 1 and not in trade but designated ranched groups of that species may be in Appendix II where strictly controlled trade is permitted. It is recommended that CITES should be approached, where relevant to GIAHS communities, in order that similar benefits may be extended to GIAHS trade. Support for this is evident in CITES debates thus Practical principle 12 of CITES' Addis Ababa principles and guidelines states that *The needs of indigenous and local communities who live with and are affected by the use and conservation of biological diversity, along with their contributions to its conservation and sustainable use, should be reflected in the equitable distribution of the benefits from the use of those resources.*

### **International Trade in GIAHS products and the WTO**

Measures designed to enhance the competitiveness of specific GIAHS products through beneficial tariff systems and state approved ecolabelling will have WTO implications. Such measures might create a distortion of trade in favour of the GIAHS example that would breach the free-trade provisions operated by the WTO.

Two types of products are relevant

**Unique products from GIAHS communities that receive state assistance applied either at export or import** The debate in this respect concerns Article XX GATT'47 and the exemptions therein to the general free-trade provisions operated by the WTO. To date the dispute panel decisions, deploying arguments concerning the chapeau to Article XX, have not been favourable to those conservation initiatives examined; usually because of their *unilateral* nature. For GIAHS, therefore, Article XX would be best fulfilled by *multilateral* consensus (through legal or policy instrument).

**GIAHS products that have no integral difference to similar non-GIAHS products may similarly receive special treatment (*non-product related PPMs*)** In order to assist GIAHS products state supported ecolabels may be applied to distinguish them from non-sustainable competing products. In theory this approach is contrary to the general free-trade pro-

visions operated by the WTO. However, the Technical Barriers to Trade Agreement permits some trade distortion of this nature in restricted circumstances which include the application of international standards as criteria for such labelling. Thus GIAHS standards could be established as parameters to enable some products to bear the GIAHS label.

**In general it should be noted that an ongoing review is being made by the WTO's Committee on Trade and Environment and elsewhere in the sub-institutions within the WTO to examine the way in which sustainable development can be integrated fully into the multilateral trade regime. The GIAHS project could maintain a watching brief in this respect but, for the moment, any instrument designed to further the interests of the GIAHS concept should consider establishing multilateral consensus based arrangements to protect GIAHS trade interests.**



## 5. Way Forward

Whereas a multilateral convention would be the ideal solution to securely establish the GIAHS concept; it seems unlikely that this would be feasible having regard to the time it would take to negotiate and put in place. Further, there are some very sensitive areas of regulation to deal with such as trade and land tenure. Without a sensitive long-term strategy, these topics alone could frustrate the progress of an endeavour to achieve a complex regulatory instrument.

A policy document reiterating the objectives of the project and its connections with other ventures; adding in as many of the potential components of a

convention as possible may be a more practical solution as a medium term goal. The MAB programme is a good example of a soft regime that nevertheless appears to operate with the strength of a convention. Although, the GIAHS concept differs dramatically from the MAB regime in that humans operate their practices within the central core zone in any protected area, GIAHS could consider emulating this general approach within a policy instrument.

GIAHS is clearly a concept that falls into the remit of the FAO and this institution should retain control of its progression to ensure that its sustainable agricultural element remains a primary goal. In terms of the steps that should be taken it would be best to aim high but with sensitivity and caution. Whereas the ultimate goal might be a convention or a sophisticated policy framework, the first step could be a simple supportive policy declaration detailing the concept, reciting both its benefits and the manner in which GIAHS would fulfil not only the FAO's objectives but also many of the other current key global aspirations.

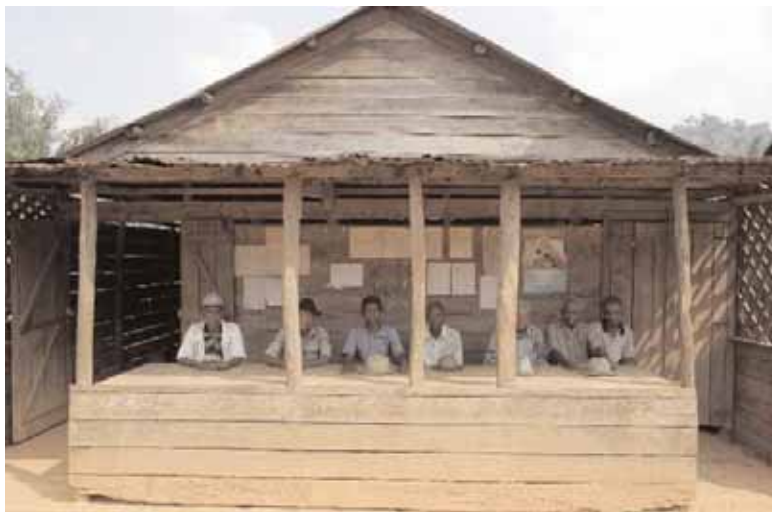
This declaration could be made by the FAO itself although either COAG or CGRFA might constitute a more practical choice. The first step would probably coincide with a campaign to publicly raise the profile of the GIAHS "brand". This way forward would enable GIAHS as a project to proceed with a programme of pilot site work and, in time, develop a comprehensive policy or convention instrument to fully regulate the concept. Within that period it could also develop its relationship with other institutions and establish specific joint ventures with organisations sharing potentially relevant protected areas.



## Local empowerment and poverty alleviation in ‘Globally Important Agricultural Heritage Systems’

*Arend-Jan van Bodegom and Frank van Schoubroeck*

---



## 1. The impossible task of GIAHS projects

### 1.1 The assignment of the global GIAHS initiative

FAO over the last few years has been actively developing the concept of Globally Important Agriculture Heritage Systems (GIAHS). FAO prepared a project proposal for GEF and possible other donors to support “dynamic conservation” of GIAHSs – to begin with for seven pilot countries (Algeria, Chile, China, Morocco, Peru, Philippines and Tunisia). Individual countries are consulting with GIAHS communities and are preparing project proposals for GEF-funding. FAO GIAHS project management in Rome stresses that the project is in an explicit piloting phase (Koohafkhan, pers. comm.). Implementation of the GIAHS projects has not been elaborated, and the present pilots are to reveal how a foreseen 100-150 of GIAHSs worldwide can be dynamically conserved. During missions to China and

The Philippines in July 2006 (Liang and Schoubroeck, 2006; Delacruz and Schoubroeck, 2006) it was found that practitioners (civil servants, NGOs, local politicians, etc.) of GIAHS dynamic conservation needed substantial practical guidance. They understood the concept of GIAHS, but asked clarification on tasks of a GIAHS *project*. This paper discusses the conceptual issues emerging when setting up GIAHS conservation support projects. It suggests that supporting GIAHS community self-determination combined with an international set of GIAHS criteria for site designation is a practical way forward in supporting GIAHS dynamic conservation.

In the field we found also an urgent need for clarification of the management set-up of GIAHS projects. This issue is discussed in a separate paper (Schoubroeck *et al.* in prep.).

### 1.2 Conceptual issues on GIAHS Project intervention

1.2.1 Issue 1: What kind of interventions will the project support?

So far, the GIAHS project went to lengths to define what GIAHSs actually are. The GIAHS concept (system, people, components, culture, etc.) has been elaborated reasonably well (e.g., Altieri, 2004, Bedel, 2004) and the need of conservation has been justified (FAO, 2002-2006, FAO, 2006). Yet, project formulators ran into problems. Available documentation provides but few hints for project *interventions*. Project *outcome* would be the sustenance of the GIAHSs through “dynamic conservation.” Examples of activities include

the development of ecotourism and linkages to niche markets. However, there is no clear linkage between foreseen project *interventions* and the desired *outcomes* (see also Howard and Puri, in prep.).

One reason may be the nature of GIAHSs as agricultural scientists perceive them (e.g., Altieri, 2004, FAO, 2006), following a wider tradition in studying Traditional Knowledge. Such literature stresses the complexity of GIAHSs: only after thorough study outsiders may be able to identify proper interventions in their support. At the same time, much of the GIAHS communities’ knowledge – like in all traditional knowledge – is ‘tacit knowledge’. This means that for both outsiders and insiders, GIAHS knowledge is like a ‘black box’. If nobody is explicit on the contents of the knowledge system, how can a project ever purposeful intervene in support of system conservation? Box 1 illustrates this conceptual difficulty as it emerged in the Ifugao Rice Terraces system in The Philippines.

This example shows that causal link between project support and terrace system conservation is not straightforward and availability of (project) funds does not automatically lead to purposeful support of ‘dynamic conservation.’ The relation between ‘project support’ and ‘GIAHS dynamic conservation’ is apparently problematic. In such circumstances, stakeholders need another “development paradigm” than classical project support.

1.2.2 Issue: What development and what conservation will the project promote?

Yet, even if we understand the system and know how to support its development, how do we balance “dynamism” and “conservation”? The goal of GIAHS projects is to achieve *dynamic conservation* of GIAHSs to preserve its functionalities. Harrop, 2005 (p.30) notes:

*“There is a fundamental right expressed in the ILO Convention 169, as has been noted, that permits traditional peoples to determine how they wish to live and how they wish to accommodate the possibilities that development might bring to them. However, the concept of GIAHS imputes some preservation of tradition. Balancing the drastic metamorphoses that development might bring with this need to preserve and maintain knowledge can produce conflicting mandates. Consequently there is an urgent need to clarify the extent to which GIAHS as a concept is able to support different levels of change. Whereas all traditional knowledge is dynamic, and change itself has been the prime creator of the ingenious aspects of the practices, there is a point at which change is no longer an evolu-*



The Ifugao Rice Terraces (IRT) systems are declining, because of various factors. Natural threats include a new pest, the Golden Snail that feeds on all rice varieties, as well as Giant Worms that make the terraces leak. Socio-economic factors include the increased migration of farmer population to urban areas in and outside The Philippines.

Options to dynamically conserve the IRT system include the development of payment-for-services (through ecotourism, water services to downstream areas, in-situ biodiversity conservation) for a variety of clients. Project designers envisioned the development of payment-for-services, but detected one missing link. Suppose the project would succeed the sustainable generation of funds to a local trust-fund, *how would the project utilize funds to sustain the IRT-system?* What activities would such “trust fund” support? Different options were discussed:

(a) Capacity building and awareness raising to the local population. This strategy supposes that lack of information and know-how is the cause of the breakdown of the system. This is clearly not the case, and this activity would not address the root problem of the system breakdown.

(b) Subsidizing terrace maintenance or growing local rice. This strategy is based on the (justified) notion that the system is not economically viable anymore. However, the moment you subsidize, farmers will become dependent and pessimists could argue that farmers will need an ever increasing support. Moreover, you will need a strict M&E and reprimand system to see if the funds are utilized for its purpose.

(c) Development of economic opportunities (local rice niche market, ecotourism). Howard and Puri (in prep.) show that “economizing GIAHSs” in some cases actively undermines the system, as market demands are different in nature than local subsistence demands.

### Box 1. Supporting “dynamic conservation” of Ifugao Rice Terraces is not a straightforward job

*tionary dynamic but has become a force with a volition of its own capable of eroding the practices completely. GIAHS must address the dilemmas that come with development before embarking on the construction of detailed regulatory engineering.”*

In other words: to what extent should the GIAHS project support, and to what extent should the project discourage changes in the GIAHS? GIAHS documentation suggests that the *functionality* of the system, including biodiversity and cultural values, should remain in place – so, for operationalisation, identification and monitoring project performance, system functionality becomes essential. In practice, project designers and farmers were confused whether a variety of techniques were “allowed” for local development. Green revolution techniques, modern (road, terrace) construction methods were all widely applied and how do they relate to GIAHS dynamic conservation?

#### 1.2.3 Issue: geographic boundaries of GIAHS projects

GIAHS project practitioners are not clear on how to assess the boundaries of a future GIAHS site. Sites must be geographically limited; at the same time, site selection criteria include its representation of a widespread system. Designation of one area as “GIAHS” holds the risk that its preservation will justify the neglect of similar systems elsewhere.

#### 1.2.4 Issue: Programmatic boundaries of GIAHS projects

The pilot project in China (as well as in The Philippines) shows that the GIAHS initiative cannot be isolated from other development in the areas. Such developments include the replacement of traditional houses and temples with modern, a-historic (concrete) building. Even if buildings are not directly part of the GIAHS, part of its quality (beauty, link to historical past) is getting lost – with implications for tourism and the system’s demonstration value.

The GIAHS initiative may be synergistic to other national programmes and developments – e.g., ecological movements, rural development initiatives, certification schemes, etc. Moreover, GIAHS is expected to effectuate national policy making for agricultural landscapes. Possibly, national NIAHS programmes (Nationally Important Agriculture Heritage Systems) can take care of a much wider area / system recognition than the international GIAHS label.

### 1.3 Justification for the development of a GIAHS intervention strategy

The above described issues emerged from early piloting experiences of GIAHS practitioners. They make clear where further conceptual elaboration is needed so that the project can provide cutting edge support to GIAHS communities. In the following Sections we will propose a project methodology, which provides clues on how to logically approach the above mentioned issues. This approach needs thorough discussion and amendment by practitioners of the GIAHS

project, in order to come to an agreed methodological framework that provides clarity needed for on-the-ground project implementation.

## 2. A possible strategy for development and conservation of GIAHSs

### 2.1 Self-determination of the GIAHS community at the heart of dynamic conservation

In concrete cases, the GIAHS community must be the ultimate “owner” (“proprietors”) of the GIAHS. After all, it is this community that holds the know-how to manage the biological and physical resources the GIAHS is carved into. It is generally the (socio-economic cultural) changes in the community (not in the physical or natural world) that threaten the functionality of the system, and poverty reduction of the commu-

nity is key to GIAHS conservation (Howard and Puri, in prep.). Thus, it is the community who should determine what is to be developed, and what is to be conserved. This means that the GIAHS initiative is in essence (and cannot be other than) a *community poverty reduction programme*, rather than a technical or cultural programme. The first task of the project is to support development of the institutional framework in which the community can develop a reasonable level of self-determination, to enable them to reduce their poverty and possibly dynamically conserve their system.

That means that the project should adhere to a methodological framework putting the communities at the centre of project interventions. Altieri (2004) proposes for that the DFID Livelihood Framework. This framework however puts the local “capitals” at the centre of its analysis, while causes of poverty often lay in higher level institutional structures. The OECD (2001)

**Table 1. Comparison of the DFID Livelihood capitals and the OECD’s poverty dimensions. The column in the centre is meant to indicate that the comparison of different forms of capital and different dimensions is not a 100% coverage.**

DFID Sustainable livelihoods framework: different forms of capital (DFID, xxxx)	OECD Dimensions of poverty (OECD, 2001)
Human capital	Human (health, education, nutrition)
Natural capital	Economic dimension (consumption, income, assets)
Physical capital	
Financial capital	
Social capital	Socio-cultural (status, dignity)
	Political (rights, influence, freedom)
	Protective (security, vulnerability)

proposes to measure and monitor poverty through the analysis of poverty dimensions. Compared to the DFID livelihood model, the OECD stresses the institutional dimensions of poverty – self-determination, dignity, rights, security.

Taking the OECD DAC criteria as a basic concept has several advantages:

1. If the GIAHS project will support the GIAHS communities to increase their self-determination capacity, it seems that the OECD's DAC-criteria provide better analytical tools to monitor the success of the project than the earlier DFID "social capitals".

2. Another interesting feature of the DAC criteria is the recognition of a dimension of poverty that is often neglected, but that is very relevant for ecosystem management and for GIAHS dynamic conservation (Howard and Puri (in prep.)). The protective dimension is the capacity of people to withstand internal and external economic and ecological shocks (Van Bodegom et al, 2006).

3. The DAC dimensions of poverty are broadly accepted by the donor community. It will be easier to provide evidence to the outside world that the GIAHS initiative offers a contribution to poverty alleviation. As we have seen in section 2.2, the mere recognition as a GIAHS site already increases self esteem (socio-cultural dimension) and economic opportunities for e.g. tourism (economic dimension)..

4. The DAC dimensions also offer a framework to review together with the local communities which dimensions need reinforcement and what strategies are necessary in order to achieve this for each dimension separately. For example:

- Improvement of the enabling environment, transparency and participation in decision making enhance the political dimension.
- Capacity building activities could reinforce the socio-cultural dimension.
- Activities to restore elements of the agricultural system in decay, could enhance the protective dimensions
- Restoring the role of herbal medicines could reinforce the human dimension.
- Support to tourism and marketing of local products could reinforce the economic dimension.

There are also examples of activities and strategies that could address more than one dimension. When a fair of local agricultural products is organised reinforces the economic dimension, but it also emphasises the local cultural identity. For examples of the connection of DAC-dimensions and strategies used in programmes which combine conservation of biodiversity with poverty alleviation, see Van Bodegom et al.

(2006). We thus propose that the DAC-criteria will be placed central in the GIAHS project approach – for planning of interventions, as well as to monitor the impact of the project. Critical will be the political dimension that will provide the institutional space for self-determination: does the GIAHS community legally own its natural resources? Does it own its land? Can it determine what kind of agricultural extension it will receive? Can it determine that school curricula include the local history, the local tradition? Such political space must be created by local and national policy frameworks. This justifies that the GIAHS initiative concentrates not only on communities, but also on local and national arenas – where institutional and policy development are determined. A situational analysis at the beginning of the project determines where bottlenecks for GIAHS community self-determination lay – and where thus the GIAHS project should support, to effectuate necessary changes. Through such institutions, the GIAHS community will address the other aspects of poverty.

## 2.2 Recognition and designation of GIAHS systems

Self-determination of the GIAHS community may be essential to GIAHS dynamic conservation – yet, communities might choose to do away with their system and embrace other, alien opportunities (as Harrop, 2005 noted). First, we must note that the community does have a fundamental right of choice in this, within the national (and international) legal framework (e.g., land use regulations and human rights.) Even the most benign well-wisher has no right to impose the direction of development on GIAHS communities (ILO convention 169 on the rights of indigenous people). One more objective of the GIAHS initiative is international recognition for GIAHSs, by operationalising a GIAHS site designation listing mechanism. GIAHS site listing criteria provide a mechanism in which the project can support GIAHS communities to develop "dynamic conservation" of their sites. Piloting experiences show the practical power of such a designation. In Tunisia, Morocco, the Philippines and China we have observed the promise of a GIAHS designation appeals to policy makers, local population, potential product buyers, and tourists alike. People are proud that they receive international recognition for an agricultural system that is their own and home-made. GIAHS recognition thus reinforces their cultural identity.

It also increases the potential for economic activities. Tourists like to visit GIAHS sites and this creates opportunities for income generation for the local population. These are two direct effects of the recogni-

tion as a GIAHS site, which we have seen happening without any further outside support. Both have a positive effect on poverty alleviation as defined by the above mentioned DAC-criteria. Thus, a clear and workable set of GIAHS criteria is the essential second (and possibly most powerful) force that can support dynamic conservation of GIAHSs (besides self-determination of the community.) In these dynamics, it is not the GIAHS community who determines what is a GIAHS, and what not. There is a role for an international body representing the world community – like the FAO, or another international institution. The GIAHS initiative faces a major task to develop an operational site listing system, which is (insofar the GIAHS documentation testifies) not yet conceptualised. Study of UNESCO’s World Heritage System may yield interesting ideas.

### 2.3 Two interfering forces: GIAHS designation and the community

Previous sections argue that the GIAHS “dynamic conservation” strategy is based on two principles: development and conservation. GIAHS communities develop their own path of development; yet the consequence of radical change of a GIAHS system is that the changed system may lose the opportunity to be designated as a “GIAHS,” as laid down in internationally defined criteria. The interference of these two “forces” is depicted in Figure 1.



**Figure 1. Two forces that determine the development and conservation of GIAHSs: the will of the GIAHS community, and an international body that sets GIAHS designation criteria.**

The figure shows that in the ideal future situation, the GIAHS community can develop its own direction of development. The International Community provides the GIAHS community with a framework within which they can develop to become or remain listed as a des-

ignated GIAHS.

### 3. A strategic look at the conceptual issues

Now that we have selected some methodological hints, we will put it to the test by looking at the earlier raised issues.

#### 3.1 Issue: What kind of interventions will the project support?

With the local self-determination in mind, the project will not directly focus on the many (biodiversity, environmental services, cultural services) aspects of the local system. Instead, it will concentrate supporting the local population to determine the future of its GIAHS. For example, the GIAHS project will figure out the opportunities within local legislation with regard to local self-governance, and support the GIAHS population to utilise legal provisions – or to promote the development of necessary new ones. We can imagine that local political structures – local governments, special GIAHS management sub-committees, etc. – will be established as permanent structures with legislative backing. The GIAHS project thus supports the development of legal structures with good resonance with the GIAHS community – thus, traditional GIAHS decision making structures need to be integrated with legal governance structures.

When the GIAHS community is in a position to govern its own system, situation analyses regarding the five DAC dimensions of poverty will bring out major threats to the GIAHS. The GIAHS community then will – with critical support – determine if and how these threats can be contended. The community – or its critical well-wishers – may bring on the discussion agenda particular issues to be sorted out – the extent to which local varieties are still in use, the control options of newly introduced pests, the support options of certain physical structures (e.g., terraces) of the GIAHS, the development of niche markets that respect local carrying capacity, etc. The project may provide budgets to the governance structures to be developed, where the GIAHS community decides how to prioritise such project activities in support of dynamic conservation of their system. It will be up to the local government to also support infrastructure improvement (marketing system, road and other public facilities) as appropriate to enable the GIAHS community to develop new opportunities for development.

#### 3.2 Issue: What change and what conservation will the project promote?

The global GIAHS project will develop and provide GIAHS site listing criteria. In the designated governance structures, representatives of the GIAHS community discuss and develop different options they have for development of their system. The project supports the community by challenging mainstream development paths with new scientific information and alternative options. For example, the “green revolution” development path is not very sensible in many GIAHS sites. Open discussion together with trial-and-error will enable the GIAHS population to define development for their own specific situation. As a result of such thorough discussions, it is up to the community to make informed decisions whether it wants to comply with the global GIAHS site listing criteria or not.



### 3.3 Geographic boundaries

The focus on local self-determination implies that local identity-boundaries that determine the size of the GIAHS system. This is not easy, as there may be a wide variety of reasons to include or exclude communities as being “one of us.” At the same time, one should be pragmatic: administrative boundaries, if they are not undermining the GIAHS system, may be adopted as they will provide the easiest opportunity to link community and government institutions.

### 3.4 Programmatic boundaries

The possible acceptance of the DAC-criteria will provide new opportunities to the GIAHS initiative. First, the new focus is on (a variety of dimensions on) poverty. This opens up the possibility that GIAHS gets

supported by a wide range of donors with poverty alleviation high in their objectives. GIAHS then gets easily mainstreamed in Poverty Reduction Strategy Papers and other national policies, which command wide political support. Second, project interventions will be tailored to the capabilities and needs of the local GIAHS community. This is in itself a strong focusing mechanism, which brings conceptual clarity to the wide possible interventions that are proposed by a wide array of stakeholders – not in the least scientists of a variety of background.

Box 2 provides a preliminary (dreamt up) example on the approach of the various issues mentioned above after having adopted the DAC-criteria in combination with foreseen GIAHS site designation criteria. The example needs further elaboration.

## 4. Conclusion

This paper hopes to contribute to the move from GIAHSs *concept* and *identification* to *active support* of their dynamic conservation. It argues that the GIAHS communities should be at the centre of GIAHS project intervention. The communities’ self-determination is the first aspect to tackle. The second aspect to tackle is the other dimensions of poverty within GIAHS communities. GIAHS site designation a potentially powerful weapon in the struggle against poverty. Solely designating a certain area as GIAHS-site reinforces some dimensions of poverty alleviation, like socio-cultural and the economic dimensions.

If the GIAHS initiative adopts the DAC-dimensions of poverty as its concept for project intervention, it can better define the project’s objectives than is presently the case. The application of DAC-poverty dimensions offers the following advantages:

Self determination of communities, pursued within the GIAHS concept, is within the DAC system an important aspect of the political dimension of poverty.

The DAC system recognises the protective dimension of poverty, which is the ability to withstand internal and external shock. It is an aspect important for GIAHS management but often neglected in development assistance.

The DAC system is broadly accepted within the donor community. If an appropriate Monitoring and Evaluation scheme is constructed around this system, the initiative can show that GIAHS interventions actually contribute to poverty alleviation. It could make GIAHS more attractive for donor support.

The DAC-system also offers a framework to define strategies and a plan of action which offers a balanced support to various aspects of poverty.

During some workshops in Ifugao, National and Local Government Officials, NGO representatives, politicians and academicians - all with extensive working experience in the area – discussed a possible GIAHS project. It appeared that local governance structures in the area (from community to provincial level) were functioning, albeit somewhat politicized, with little resources. The Rice Terrace system appeared to provide a wide variety of environmental services, like stable and clean water provision to downstream areas (for rice irrigation), and tourist attractiveness. Ifugao rice farmers were in fact subsidizing these “clients.”

When discussing the possible role of a GIAHS project, different issues were discussed:

*Issue: What kind of interventions will the project support?* With the “local self-determination” in mind, local (elected) councils can run the project to conserve the Ifugao rice terraces. It will look at institutional bottlenecks to be addressed at national and provincial level. Ifugao province already had prepared a Master Plan that was not implemented in absence of funding. The project could support elements of that plan with a bearing on DAC-criteria of the GIAHS population (such as subsidizing terrace maintenance), to be evaluated by local councils. For example, the Rice Terraces are nationally classified as “forest / non-agricultural lands”, ruling out legal private ownership of terraces and associated forest and traditional protection. Micro land use planning, as already implemented by NGOs, can be supported by the project. The project could also support the setting up of a local GIAHS trust fund, with links to payment-for-environmental services and tourism fee levying, to finance local governance initiatives in the long run.

*Issue: what will be protected, and what will be conserved?* The local structures will determine the development of their areas. At the same time, the international GIAHS criteria provide a possible direction of development to local structures – in support of dynamic conservation.

*Issue: Geographic boundaries of the GIAHS initiative.* Institutions developed through local governance councils in GIAHS pilot sites are naturally best adapted to the local institutional landscape. The GIAHS initiative thus is best initiated in municipalities that are most fit to develop a system within the national legislative framework. Once such system is established, it is tailored to the local situation – and can be replicated as per national policies.

*Issue: Programmatic boundaries of the GIAHS initiative.* The above mentioned reasoning shows that GIAHS projects elaborate on existing national programmes. In the case of The Philippines, the on-going decentralization policy provides opportunities for local people to build further on their heritage. Other relevant programmes are land use planning initiatives of government offices and local NGOs, as well as the development of Ifugao local rice niche markets and ecotourism. There are plenty of programmes, which can be locally combined into a coherent GIAHS dynamic conservation programme.

## Box 2. Supporting “dynamic conservation” of Ifugao Rice Terraces with DAC-criteria as guiding principles

Although all dimensions of poverty are important, we believe that GIAHS support should be focused on reinforcing the political/institutional dimension which would result in a situation where

- there is an optimal enabling environment (institutions, laws, regulations, designation procedure for recognition as GIAHS) for dynamic conservation of the GIAHS system

- communities are able to determine their future for themselves, inside or outside a GIAHS system. If they wish to work within the GIAHS rules then they could be supported to define and prioritise actions which reinforce the various dimensions of poverty. With limited support the GIAHS organisation can initiate and catalyse prioritised activities.

### References

Altieri, Migueal A., 2004. Towards a methodological framework for implementing the GIAHS process in target sites: suggested guidelines and tips. Draft no. 2, June 2004.

Bedel, Jean Gabriel, 2004. The GIAHS programme in 20 questions. Internal FAO document, accessible at the GIAHS website, 16 pp.

Bodegom, Arend Jan, Timothee Fomete, Mine Pabari, Nico Rozemeijer, Lotje de Vries, Winfried Zettelmeyer,

2006. Evaluation of the Theme-Based Co-Financing (TMF) – Lot 3: Biodiversity Conservation and poverty Alleviation. Wageningen International, Holland. 178 pp. <http://www.tmf-evaluatie.nl/> downloads no 3.

Checkland, Peter, and Jim Scholes, 1999. Soft Systems Methodology in Action. John Wiley and Sons, Ltd., 329 pp.

Delacruz, Mary-Jane, and Frank van Schoubroeck, 2006. Mission Report of FAO-Rome and Wageningen International to Philippines / Manila and GIAHS pilot site in Ifugao.

Ericksen, Polly, and Ellen Woodley, 2006? Using Multiple Knowledge Systems: Benefits and Challenges. In: Ecosystems and Human Well-being: sub-global, of the Millennium Assessment.

FAO, 2002-2006. GIAHS website: <http://www.fao.org/AG/agL/agll/giahs/default.stm> accessed in February to September 2006.

FAO, 2006. Conservation and adaptive management of globally important agricultural heritage systems (GIAHS). UNDP Project Document, 50 pp.

Harrop, Stuart R., 2005. Globally Important Ingenious Agricultural Heritage Systems – an examination of their

context in existing multilateral instruments. Internal FAO document, accessible at the GIAHS website, 16 pp.

Howard, Patricia, and Rajindra Puri, in prep. A Conceptual Framework For Approaching Globally Important, Ingenious Agricultural Heritage Systems (GIAHS). Internal working paper.

Koohafkhan, Parviz, pers comm. Mission debriefing meeting in FAO-Rome, August 16, 2006 attended by Luohui Liang, Mary Jane dela Cruz, Frank van Schoubroeck and chaired by the Project Manager Parviz Koohafkhan.

Liang, Luohi, and Frank van Schoubroeck, 2006. Mission report Longxian GIAHS pilot site, China.

OECD, 2001. The DAC guidelines. Poverty reduction. <http://www.oecd.org>

Ostrom, 2005. Understanding Institutional Diversity. Princeton University Press, 355 pp.

Schoubroeck, Frank van, and A.L. Karna, 2003. Initiating co-ordination platforms for Forest Management in the Terai. Banko Jankari, Vol. 13 number 1, Department of Forest Research and Survey, Babar Mahal, Kathmandu.

Schoubroeck, Frank van, Mary Jane de la Cruz and Luohui Liang, in prep. Institutional mechanisms to support dynamic GIAHS conservation in participating countries. Discussion paper for the GIAHS conference 24-26 October 2006, Rome, Italy.

Woodhill, Jim, 2005. Facilitating Complex Multi-Stakeholder Processes. A Social Learning Perspective. Working Document of Wageningen International, available at <http://portals.wi.wur.nl/msp>

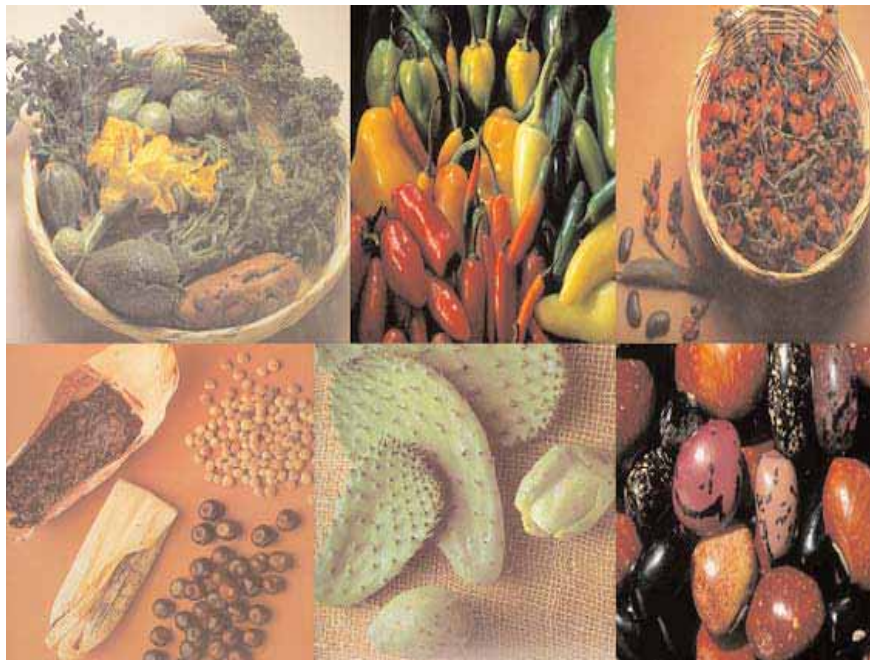




# Commission on Genetic Resources for Food and Agriculture (CGRFA)

*José Esquinas-Alcázar*

---



## Summary

Agricultural biological diversity, often referred in FAO as genetic resources for food and agriculture, is the storehouse that provides humanity with food, clothes and medicines. In spite of its vital importance for human survival, agricultural biodiversity is being lost at an alarming increased rate. Genetic resources can be conserved *ex situ* in gene banks, or *in situ*, either on-farm or in natural reserves. *In situ* conservation involves the protection of the areas, ecosystems and habitats in which plants of interest have developed their distinctive characteristics.



In 1983 the FAO conference (Resolution 9/83) established the Commission on Genetic Resources for Food and Agriculture (CGRFA), the first UN's permanent intergovernmental forum dealing with agro-biodiversity.

It is now universally accepted, and its current membership of 167 countries makes it widely inclusive. Its mandate covers all components of agro-biodiversity of relevance to food and agriculture: plants and animals, forestry, fisheries and micro-organisms.

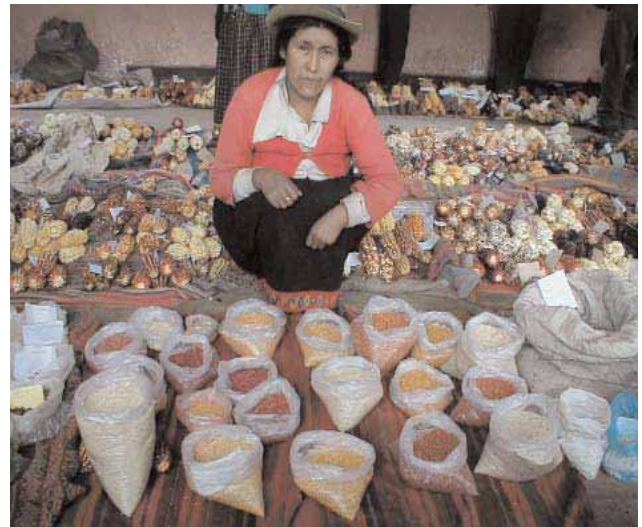
Since its inception, the CGRFA has emphasized the importance of protecting *in situ* conservation areas, as a way to ensure continuous co-adaptation to a changing environment and human pressure, by maintaining the evolutionary dynamics of agricultural species in the human and agro-ecological sites in which they have evolved.

Nevertheless and although an increasing number of *in situ* conservation areas, including conservation on farm in traditional agricultural systems, are protected at the national level, conservation areas specifically for GRFA are still rare. The integrated approach to

*in situ* conservation taken by the Globally Important Agricultural Heritage Systems project is a good example of the approach needed to be followed in this field.

On its 20<sup>th</sup> anniversary, the CGRFA celebrated its achievements, especially in the areas of crops and farm animal genetic resources. The Commission identified the development of the International Treaty on Plant Genetic Resources with pioneering provisions for the implementation of Farmer's Rights and for a Multilateral System of Access and Benefit-sharing as its main achievement.

It also recognized the limitations of taking purely sectorial approaches. It therefore recommended preparing a Multi-Year Programme of Work (MYPoW) to be submitted at its Eleventh Session, in June 2007. The MYPoW will include work on the agro-ecosystem approach, integrating the various areas of biodiversity for food and agriculture. GIAHS, with its clear intersectorial agro-ecosystem approach is in line with this recommended new conceptual dimension.



The GIAHS project crystallizes the need for approaches that integrate the *in situ* conservation of genetic resources with related traditional knowledge and local technologies. The CGRFA, as FAO's permanent forum where governments discuss and negotiate matters relevant to genetic resources for food and agriculture, and their sustainable utilization and the fair and equitable sharing of the benefits, could provide, if countries so wish, an ideal intergovernmental umbrella where GIAHS issues and concerns could be raised, and where priorities and policies could be defined.

GIAHS represents an initiative through which traditional knowledge and the agricultural resources

and diversity developed by our ancestors can be passed on to future generations, to face unpredictable environmental changes and human needs. A further development of GIAHS will be a great contribution of our generation to the future of mankind.



# Philippines: Governance and Local Empowerment in the Environment and Natural Resources Sector

*Analiza Rebuelta-Teh*

---



## Introduction

Environmental governance in the Philippines exists in various hierarchies- at the supra-national and global (e.g. through treaties, multilateral agreements), national (e.g. through laws, Executive Orders, legislations), and sub-national (e.g. regional offices, local government units, community arrangements, kinship) levels. While environmental governance continues to move beyond the nation-state as a result of multilateral environment agreements and trade, a parallel but



reversed movement has been increasingly observed over the last 15 years. This new direction has been towards sub-national units, as a result of the decentralization and devolution policy of the government that rely heavily on field offices, LGUs and communities to carry out various environmental initiatives. This trend implies that more of the “decisions and actions” concerning the environment have to be made at the local level. Governance is the totality of institutional controls on human behavior in society.

Institutional or societal controls on behavior arise from the deliberate decisions (i.e. policy) and actions (i.e. programs and projects) of environmental institutions (formal and non-formal) and sectors of society (state and non-state) to shape the state and conditions of the environment toward ways to serve various human and ecological objectives. The government is not the totality of governance in the Philippines- it only represents the formal system of statutory governance. A significant form of governance in the Philippines is customary governance, owing to the great diversity of ethno linguistic groups numbering 110 groups in various parts of the country’s more than 7000 islands, and with a total population of 11.8 million (NCIP, 2003). In

the country’s push for modernization and progress, the disharmony between formal and customary governance has been a recurring problem, especially in the environment and natural resources sector. “Good environmental governance”, broadly referring to ‘*societal control mechanisms and processes that link key decisions and actions on the environment to shared social and ecological objectives*’ (EcoGov, 2006), is widely recognized to be a key determinant of the past, current – and future – state of the environment. Seen in this light, good environmental governance is expected to contribute to improved conditions of the environment and natural resources in the Philippines.

On the other hand, weak governance is closely linked to the catastrophic degradation of the country’s environment and natural resources over the last 50 years. To illustrate, while the country is among the 17 mega diversity countries that contain two-thirds of the world’s total biological resources (Heaney and Mittermeier, 1998), it is also one of the 25 global biodiversity ‘hotspots’. Today, less than 6% of original forest cover remains- one of the lowest per capita in the tropics. A total of 491 Philippine species are listed in the 2004 IUCN Red List of Threatened Species, making the country fifth (5th) in terms of world ranking in the number of threatened species.

## Policy Framework for Improved Environmental Governance and Local Empowerment in the Philippines

Past environmental problems in the Philippines can be traced back to weak natural resources management, financial resources limitation, and unresponsive and ineffective national management institutions (World Bank, 2003). The government has tried to reverse this trend in the last 20 years by introducing innovative legal framework and institutional arrangements that promote decentralization, subsidiarity principle, devolution and partnerships with local government units, indigenous peoples, communities, and private sector stakeholders, consistent with the pro-people, pro-environment and pro-social justice mandate of the 1987 Constitution.

### *The Local Government Code and Other Pertinent Laws*

The passage of RA 7160 (Local Government Code of 1991) has served to strengthen local governance by providing for autonomy of local government units, allowing them to share with the national government the responsibility in the management and maintenance of ecological balance within their territorial juris-

diction, and by devolving to them certain forest and environment management functions. Related pieces of legislation that define a wide range of LGU and community tasks include the Ecological Solid Waste Management Act of 2000 (RA 9003), Philippine Fisheries Code (RA 8550), Agriculture and Fisheries Modernization Act (RA 8435); Indigenous People's Rights Act (IPRA); and the Philippine Clean Air Act of 1999. RA 9003 and the Philippine Clean Air Act empower private citizens to sue their officials for willful neglect of their environment duties. There are other special laws that support local autonomy and empowerment. For instance, the Strategic Environmental Program (SEP) Law of Palawan empowers the province to manage its own forest resources through the Palawan Council for Sustainable Development (PCSD).

#### *Law Granting Regional Autonomy to Muslim Mindanao*

The national government has shown clear and substantial commitment to devolution of powers and functions to the regional level when it passed the breakthrough law (RA 9054) creating the Autonomous Region of Muslim Mindanao (ARMM). The ARMM government established their own Department of Environment and Natural Resources (DENR) which assumed the environment and natural resources management functions and jurisdictions of the national DENR, subject to the provisions of the Philippine Constitution and pertinent national laws/policies. The ARMM Regional Assembly successfully passed its own Sustainable Forest Management Act (SFMA). A similar bill has been sitting in the national Congress over the past 15 years.

#### *The Recognition of the Indigenous Peoples (IP) Rights*

The Regalian Doctrine is the basic foundation that affects land allocation, land ownership and resource management in the country. The confusions created among indigenous peoples of the concept of the "public land" owned by the State led to breakdown of common property regimes and the proliferation of open access conditions. The latter, in turn, led to unsustainable resource management as the customary rules for managing natural resources became undermined (Prill-Brett, 2003).

The passage of the Indigenous Peoples Rights Act (Republic Act 8371) in 1997 heralded the return of power and jurisdiction of the indigenous peoples over their ancestral lands and ancestral domain. The law mandated the creation of the National Commission for

Indigenous Peoples (NCIP), which was given the authority to issue Certificate of Ancestral Domain Title (CADT) and Certificate of Ancestral Land Title (CALT).

The IPRA paved the way for the recognition of indigenous culture and ancestral land rights and promoted the right of IPs to empowerment and self-governance. It established the requirement for free, prior and informed consent (FPIC) before any project can be implemented in IP territories and mandated the IPs themselves to prepare their own Ancestral Domains Sustainable Development and Protection Plan (ADS-DPP). The recognition and promotion of the rights of the indigenous peoples has now been increasingly linked to government policy on ecological conservation and biodiversity protection, including the policies on bioprospecting (EO 277), NIPAS Act, Community-Based Resource Management (EO 263), and even the Mining Act (RA 7942).

#### **Assessment of Selected Experiences on Local Empowerment, Devolution and Decentralization in the ENR Sector**

##### *Traditional Resource Management Practices and Use Rights*

Indigenous peoples of the Philippines have preserved many of their own customary practices, traditions and livelihood and resource systems, showing great resilience against centuries of foreign domination and their exposures to lowland and market influences.

Centuries of adaptation and co-evolution of the social system with the biophysical environment and agro-ecological system, meant that technological successes have been adopted and institutionalized, thus the resulting practices have proven to be scientific and sustainable (see Omengan and Sajise, 1981, Padilla, 1992; Butardo-Toribio, 1996; Butardo-Toribio and Orno, 1996). Examples of such practices include the *Muyong* (forest or woodlot) and *Uma* among the Ifugaos, the *Imung* of the Kalinga of Mangali, the *Pinawa* of the Kalinga of Tinglayan, the *Lapat* system in Abra, the *Day-og* and *Guenguen* among the Ikalahans, and the *Tayan* of the Bontocs. In recognition of the importance of the *Muyong* in preserving the forest resources in Ifugao province, the DENR issued Memorandum Circular 96-02, which among others provides for the issuance of "Muyong Resources Permit" (MRP), which grants the privilege of resource extraction and disposition to qualified applicants. Carino (undated), however, criticized this move of the government stating that "the policy takes back what it gives by requiring the woodlot owners to apply for the MRP, by imposing restrictions

on the continued practice of the *muyong*, and by requiring MRP holders to submit to the conditions set forth in MC 96-2". Reports have, however, shown that even the centuries old-systems described above may become vulnerable due to rapid socio-economic, policy, and environmental changes (see for instance, Butardo-Toribio, 1996; Butardo-Toribio and Orno, 1996).

For instance, conflicting and ambiguous land allocation policies exacerbated by population and market pressures and other incongruous external influences can serve as a deterrent to the sustainability of these resource-management systems. In addition, many of the young IPs may have already lost track of their indigenous knowledge and skills (Rueda, 2006) as they continue to be allured by the city and modern ways.



#### *Forest Co-Management in Nueva Vizcaya*

The co-management arrangement over the forestlands entered into between the province of Nueva Vizcaya and the DENR Region 2 office to manage a portion of Magat watershed is an example of a working model on local empowerment and devolution. As a result of this agreement, the poverty incidence in the province decreased from a high of about 50% in 1995 to a low of about 11% in 2003 and forest violations went down. This system, however, being based on a mere Department Administrative Order, does not have a very stable legal standing.

#### *Community-Based Forest Management (CBFM) Strategy*

Through EO 263, CBFM was adopted as the Philippines' "national strategy to achieve sustainable forestry and social justice". Under the CBFM Program, tenure holders are given the privilege to occupy, pos-

sess, utilize and develop forestlands and resources found therein; to enter into agreements or contracts with private entities or agencies; and to receive all income and proceeds from the sustainable use of forest resources within the award area, among other privileges.

The beneficiaries themselves with assistance from DENR prepare their Community Resource Management Framework (CRMF) and Annual Work Plans which serve as their guide for sustainable development and utilization of the area's resources. The implementation of the CBFM Program is hailed as a major achievement of the DENR for the decade. However, this program has recently been beset by problems, particularly in terms of the failure of the policy to consider the great diversity of community beneficiaries; their varying resource endowments, skills and management practices; and their differing levels of self-empowerment and governance.



#### **Role of GIAHS Project in Promoting Environmental Governance and Local Empowerment in the Philippines**

The above discussions highlight some of the gains so far in terms of Philippine strategy in enhancing local governance and empowerment is concerned. Undeniably, there are many gaps still, particularly in terms of being truly effective in integrating the concerns of indigenous peoples in government policies and programs in resource allocation, tenure issuance and management.

The GIAHS Project by aiming to "protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements" has a lot to contribute in this regard. The



Philippines can learn and achieve much from the implementation of the following GIAHS approaches: 1) the recognition of the dynamic nature of GIAHS and their ability to be resilient to new challenges without losing their biological and cultural wealth, and productive capacity, and, 2) the focus on the human and knowledge systems, including their socio-organizational, economic and cultural features that support GIAHS without compromising their resilience, sustainability and integrity.

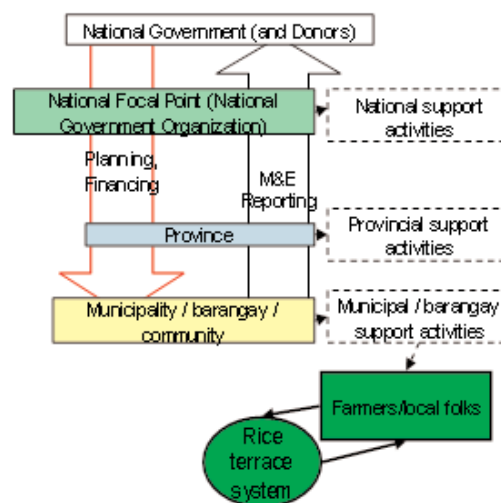
### Proposed Structure for GIAHS

An innovative institutional structure for GIAHS has been shown to be greatly needed in the Philippines particularly because the continued survival of globally important agricultural heritage systems in the country is at risk from: a) loss of customary institutions and social organizations that support them in favor of formal structures dictated by governments, b) rapid environmental and socio-economic and policy changes associated with modernization and globalization that put a strain on the capability of traditional institutions and resource management systems to adapt to them, c) abandonment of traditional resource management systems in favor of unsuitable and ecologically harmful technologies due to market and policy pressures, and d) abandonment of traditional beliefs that link indigenous peoples and nature due to increasing contact with the commodity-market and integration with mainstream society.

The proposed support delivery system for GIAHS presented in *Figure 1* encompasses the various key hierarchies of governance. The highest level is the level of national governments and donors. At this *global level*, the key activities would be to facilitate international recognition of the concept of GIAHS and to consolidate and disseminate lessons learned and best practices from activities at the pilot country level. Within each pilot country such the Philippines, a national government organization shall serve as the national anchor for country-level support activities. Key activities at this level would include planning, financing, M&E and reporting and national mainstreaming of the GIAHS concept.

Field level activities shall be at the hierarchies of provinces, municipalities and barangays, primarily to address conservation and adaptive management needs at the community level.

## GIAHS Delivery System



**Figure 1. Proposed GIAHS Support Delivery System**

### Policy and Action Imperatives

At the national level, GIAHS-supportive environmental governance requires anchoring GIAHS-supportive macro policies, strategies, programs, standards, resource allocation decisions and actions on accountability, participatory processes, transparency, responsiveness, and rule of law principles. The central and most important role of the government is that it shapes the policy and incentives environment that influences peoples' behavior and relationship with their environment. Conflicts arise, however, when government's policies prove incongruous with local beliefs, customs and traditions and worldviews held by indigenous peoples since time immemorial. For instance, the inability of government policies and tenurial instruments to consider the prevailing concepts and practices of land ownership and the traditional resource use practices of indigenous peoples can cause conflicts to occur and can even exacerbate resource degradation.

Toward this end, there is a need to enhance the capacity of the State to formulate responsive and effective policy and programs that recognize unique needs of GIAHS independent of pressure from special interests. In particular, the following reforms are needed: 1) enhancing the skills of policy and decision-makers to aggregate diverging interests to represent the public

interest on GIAHS, 2) strengthening the ability of decision makers to resist corruptive pressures, and 3) enhancing the capacity of policy and decision-makers to consider, prevent or mitigate, monitor, and evaluate regulatory and program side effects, for instance, through the use of techniques and tools such as benefit-cost analysis, environmental and social impact assessment, risk analysis, and the adoption of the Precautionary Principle when dealing with GIAHS. Research and establishment of monitoring and evaluation tools should be conducted to enable the national government to track the problems and develop appropriate macro- and micro-level solutions to GIAHS concerns.

*At the regional and provincial level*, there is a need to mainstream the conservation and adaptive management objectives of GIAHS in regional and provincial level sectoral and inter-sectoral policies, development plans, programs, and projects, following the principles and practices of good environmental governance.

*At the municipal level and barangay level*, GIAHS- supportive environmental governance would require: 1) the integration of GIAHS and environmental governance processes and principles in municipal/city/barangay ordinances, plans, programs and projects, 2) harnessing local political, social and economic processes as well as appropriate new technologies in ways that interact with local ecological factors such that biodiversity and local cultural values are maintained, 3) strengthening/enhancement of organizational management capacities and values of local institutions to help them better adapt or adjust to outside pressures.

If they are better organized and prepared, they can easily communicate their concerns and coordinate and integrate their plans and programs with government agencies' and other institutions' plans and programs without losing their essential resiliency and sustainable practices. Lastly, for the benefit of preserving traditional knowledge and practices, indigenous and other local peoples who have adopted ecologically and culturally incompatible technologies and practices should be made aware of the consequences of these harmful innovations. Their pride in their own knowledge and practices should be enhanced through wide and formal recognition of the advantages of these indigenous systems and their role to environmental sustainability.

## Summary

Good governance is the complex of decisions

and actions that regulatory institutions in society – government in particular – make and do to (a) control human behavior and (b) harness society's endowments for the common good. Good governance is a necessary precondition to good environment. It would be difficult to achieve a robust environmental base for the nation's development without addressing the issues and constraints of governance. Formal governance, however, has to consider and amalgamate the important contribution of customary governance. Traditional knowledge and practices of indigenous peoples can give the world important insights that can be used in formulating policies, techniques, and strategies for the sustainable use of the world's biological endowments.

Over the last 20 years, the Philippines have taken significant changes in improving its governance and empowerment policies, programs, and initiatives. In the ENR sector, the Philippines has taken a serious effort to enact a policy that recognizes the legitimate claims of the IPs, respect for customary laws and local knowledge such as the Ifugao Rice Terraces and the Muyong system of forest management. The Philippines continues to learn, reflect, and re-direct its efforts to improve its policies, strategies, programs for effective and efficient governance and empowerment of the marginalized sectors such as the IPs, upland occupants, fisher folks, landless farmers, and the urban poor. The GIAHS is supportive of the emerging thrust of the Philippines to improve environmental governance at all levels- national, regional, provincial, municipal/city to barangay as a way of conserving its biodiversity and reversing the trend of environmental degradation.

However, effective conservation of GIAHS calls for sustainable strategies that recognize the different realities and hierarchies, as well as the complex and dynamic processes, interactions and interdependence in the landscape and the human-agro-ecological systems. Technical interventions, for instance, should conserve environmental regeneration capacity and consider the socio-cultural milieu of the beneficiary communities. It should not also be forgotten that two of the most dominant factors of change and unsustainability are the effects of the market and the policies of the national (and global) economic and political systems. The kind of development that these exogenous factors will ultimately lead to will depend on how the existing set-ups of technology, economy, natural resource base, and social institutions will interact and readjust with each other at particular point in time and level of hierarchy. There is also a need to consider the impacts of such environmental perturbations such as global

warming and El Niño/Southern Oscillation Diagnostic Discussion (ENSO). Just as important as the implementation strategies for bringing about sustainable GIAHS is the identification of appropriate indicators to assess the progress of the achievement of the GIAHS objectives. Indicators maybe developed at the national, regional, provincial and municipal hierarchical levels as well as farm and household or watershed level indicators.

## References

Butardo-Toribio, M. 1996. Bontoc Rice Farming System: Case Study of An Indigenous Paddy System. *In*. Environmentally Sustainable Rural and Agricultural Development Strategies in the Philippines (Lessons from Six Case Studies). Percy E. Sajise and Nicomedes D. Briones eds. SEARCA.

Butardo-Toribio, M. and Jesusita, Orno. 1996. The Indigenous Agroforestry Production System of the Ifugao. *In*. Environmentally Sustainable Rural and Agricultural Development Strategies in the Philippines (Lessons from Six Case Studies). Percy E. Sajise and Nicomedes D. Briones eds. SEARCA.

Carino, Jill. Undated. An Assessment of the Implementation of the Philippine Government's International Commitments on Traditional Forest-Related Knowledge from the Perspective of Indigenous Peoples

*In*: [www.international-alliance.org/documents/philippines\\_eng\\_full.doc](http://www.international-alliance.org/documents/philippines_eng_full.doc)

Omengan, E. and P. E. Sajise. 1981. Ecological Study of the Bontoc Paddy System. A Case Study of Human Environment Interaction.

Padilla, H. 1992. High and Stable Crop Yields: The Bontoc Rice Terraces. *In* Let Farmers Judge Experiences in Assessing the Sustainability of Agriculture, Hiemstra et al. (ed). Intermediate Technology Publications. London.

Prill-Brett, J. 2003. Changes in Indigenous Common Property Regimes and Development Policies in the Northern Philippines. Paper presented at the RCSD International Conference *Politics of the Commons: Articulating Development and Strengthening Local Practices*, 11-14 July 2003, Lotus Pang Suan Kaew Hotel, Chiang Mai, Thailand.

Toribio, M. B. and B. S. Malayang III. 2004. Environmental Governance in Waste Management. *In*. Agricultural Waste Management Committee. 2003. The Philippines Recommends for Agricultural Waste Processing and Management. Los Baños, Laguna. PCARRD-DOST, PARRFI, and DA-BAR. 2004. 198 p. (Philippines Recommends Series No. 91)

World Bank Rural Development and Natural Resources Sector Unit. 2003. Governance of Natural Resources in the Philippines: Lessons from the past, directions for the future. Part II. The World Bank.



## China's GIAHS Conservation: National Framework

*Qingwen Min and Sun Yehong*

---



## 1. Description of the Pilot System

Rice-fish agricultural system in Qingtian China was selected as GIAHS in May 2005. It is an indigenous agricultural system harbouring globally significant biodiversity (agrobiodiversity and associated biodiversity) which is under threat. In the complex system, non-biological factors (e.g., water, soil, light, heat, and air) and biological factors (e.g., animals, plants, and microorganisms) are interrelated and interdependent. They form an ecosystem with unilateral functions. One factor changing will trigger a chain of reactions. According to the principles of ecology, the structure of the food chain in a system has a direct impact on the net output of the ecosystem.



The agro-biodiversity characteristics of the system are as following:

Agricultural species include: integrated use of forest (70% of watercatchment), paddies, home gardens, trees and hedges in the field and small livestock / poultry; 20 native rice varieties (many threatened); vegetables: lotus roots, beans, taro, eggplant and numerous other native vegetables; fruits: the Chinese plum (*Prunus Simoni*), mulberry; 6 native breeds of carp red/black/white/variegated carp.

Associated biodiversity include: 5 species of fish, amphibians, snails allowed in paddies; 7 species of wild vegetables collected in borders of fields; 62 forest species are used of which 21 as foods; 53 medicinal; and wild cats, snakes.

Rice-fish agricultural system has many ecosystem functions. In rice-fish system, rice and fish live together in the same field. This technique can be used with early rice, midseason rice, and late rice. Some contradictions between growing rice and raising fish are unavoidable. Therefore, fertilizer and pesticides

that can harm the fish are avoided. Generally, excessive engineering facilities are not necessary. Fish feed is not needed because the fish live on natural food in the paddy field. This is extensive culture. Average production is about 150 kg/ha and well-managed fields can produce over 750kg/ha. The disadvantage of this technique is that the growth period of the fish is comparatively short and the harvested fish are small.

Therefore, large fingerlings are usually used. The technique is occasionally used to stock adult fish for one year. In a rotation of rice and fish, the fallow field left after the rice is harvested is used to raise fish. Generally, fish fry or fingerlings are stocked. After the rice harvest, the straw is left in the field. When the land is irrigated, the straw decays, which makes the water suitable for feeding adult fish. In this form of rice-fish culture, fish have more space to move about and it is convenient to spread feed, but the growth period is relatively long. Compared with raising rice with raising rice with fish, production of fish is higher. Generally, fish yields are 300-450 kg/ha with maximum yields of over 1,500 kg/ha. Because it provides remarkable economic benefits, rotation of rice and fish is widely used in fallow winter fields, during the summer with green manure crops, for stocking fingerlings to produce table fish, and in seedling beds to stock fish fry for fingerling culture. In continuous rice-fish culture, rice and fish are raised together. Because the fish are raised after the paddy field is fallow, their growth period may be over one year, which produces better results. Generally, production reaches over 750 kg/ha. This form of culture is widely used in hilly and mountainous regions. The rice-fish system provides multiple goods and services including: food security (rice production); quality nutrition and income generation (consumption and sale of fish); prevention of malaria (reducing mosquito by fish); conservation of biodiversity (rice, fish and associated species due to reduction of pesticides); pest regulation; carbon and nutrient cycles; soil and water conservation and restoration. The rice-fish system also demonstrates an ingenious approach to inspiring how economic and social benefits can be achieved through encouraging essential ecological functions.

China's legal system<sup>1</sup> stipulates that most farmland is owned collectively by farmers. Launching in the end of 1970s, the rural household responsibility system (HRS) reform distributed the farmland (including cultivated land, water, and forest land etc.) to farmers. Farmers can decide by themselves what to grow in their land based on needs of home consumption and markets of agricultural products<sup>2</sup>. As one of the production technologies and activities, whether to adopt

rice-fish farming is up to farmer's decision. Most farmers own both the water surface and the land in Qingtian County, Zhejiang Province. They usually move the fish in the rice field to the water ponds when the rice is harvested. Some farmers raise fish fry and young fish in their rice fields and sell them to the fish folks, who will then continue to raise them in fish ponds. It is relatively easy to move fish between the rice fields and the fish ponds, and the production cycle of rice-fish culture is also relatively short. As a result, farmers' input to the rice-fish system is not so much affected by the security of the land tenure.

As rice fields in China are small, farmers' cooperation in the village is essential to managing this rice-fish culture. In some cases, rice growers and fish growers cooperate in using same rice fields for production.

## 2. History of the Co-evolution of the Rice-fish Agriculture

Rice is one of principal food crops of the world. It provides 20 % of total calorie supply of the world population. Ninety percentages of rice fields are distributed in the Asia. Ninety percentage of them are wet fields, which are irrigated, rainfed or deepwater. Upland rice accounts for only a small percent of the rice areas and production. Over a long history, fish is farmed in some wet rice fields, either concurrently or rotationally with rice in Asia. The canon for fish culture written by Fan Li about 400 BC states: "...dig six mu of land into a pond ... put 2000 fry into the pond ...sell the rest in the market".

In a good year with ample rainfall and moderate weather, 2000 carp fry could produce numerous eggs. Some wise farmers may have placed excess fry in their rice fields. The fish in the rice fields may have grown better than those in the ponds, and the practice of raising fish in rice fields was born. There are no records of when the practice started, but this seems to be a logical explanation of how rice-fish farming began in China. The rice-fish farming system is described not only as one of production style, but also as one of the culture. Tombs of the mid-Eastern Han Dynasty (25-220 AD) were excavated in 1964 in Hanzhong County, Shanxi Province<sup>3</sup>. Two clay models were unearthed: a model of a pond and a model of a rice field. The pond model contained 15 miniature pieces (6 common carp, 1 soft-shell turtle, 3 frogs, and 5 water chestnuts). A stone carving of a pond and rice field model was discovered in the brick tomb of the Eastern Han Dynasty in 1977 in Emei County, Sichuan Province. Half the stone was carved into a pond with frogs, fish, and ducks. The other half was carved into a rice field with

an inlet and outlet, two farmers toiling on one side, and two heaps of manure on the other. Four mid-Han Dynasty tombs with 200 relics were excavated in 1978 in Mian County, Shanxi Province. One of the intact relics was a rice field model containing 18 pottery miniatures of aquatic plants and animals. There were sculptured frogs, eels, spiral shells, crucian carp, grass carp, common carp, and turtles in this model. Another of a winter rice field showed farmland with a reservoir that also contained these fish. These relics not only proved that rice-fish farming system was one of farmer's production practices 1700 years ago. It also proved that the early rice-fish farming system is a very diverse system.

The more detail written record of rice-fish farming is from Recipes for Four Seasons which was written by Cao Cao<sup>4</sup> in Sanguo Dynasty (200-265 AD):

A small fish with yellow scales and a red tail, grown in the ricefields of Pi County northeast of Chendu, Sichuan Province can be used for making sauce.

After that, in Tang Dynasty, in Ming Dynasty, and in Qing Dynasty, there were also numerous written records about rice-fish farming system or culture. For example, Liu Xun (about 889-904 AD), wrote in *Wonders in Southern China*:

In Xin, Long, and other prefectures, land on the hillside is wasted but the flat areas near the houses are hoed into fields. When spring rains come, water collects in the fields around the houses. Grass carp fingerlings are then released into the flooded fields. One or two years later, when the fish are grown, the grass roots in the plots are all eaten. This method not only fertilizes the fields, but produces fish as well. Then, rice can be planted without weeds. This is the best way to farm.

It indicated that before 1000 years ago, China's farmers had adopted the rotational rice-fish farming technology. Another record was found in chronicle<sup>5</sup> of Shunde County, Guangdong Province in Ming Dynasty (1573 AD). It states that:

The periphery of a land was trenched as a plot, called the field base.... In the plot, a pond was dug to rear fish. During the dry season, rice seedlings were transplanted to the plot. The area might be several hectares.

It indicated that rice-fish farming technology was further advanced 400 years ago. After the founding of the People's Republic of China in 1949, rice-fish culture developed quickly. In 1954, the fourth National Aquaculture Meeting proposed the development of rice-fish culture across the country. By 1959, the area

of rice fish culture had been expanded to 666,000 ha. From early 1960s to the mid 1970s, several factors, including the intensification of rice production and the large-scale application of chemical insecticides, impeded the development of rice-fish culture<sup>6</sup>. For example, in Guangdong Province the area of rice-fish culture dropped from 33,333 ha in the early 1950s to 320 ha in the mid 1970s, and in Hunan Province the area dropped from 232,000 ha in 1958 to 5,333 ha in 1978.

During the late 1970s, there were changes in rice production. Improved modern varieties of rice and less toxic chemicals were used and there were changes in the units of production. The production-contract system was implemented in rural areas starting in 1978 and this allowed individual families to become the main units of production. In addition, there was a rapid development of aquaculture, which required the production of a large amount of fry and fingerlings. This demand was partly met by fingerling production in paddy field. Research and supporting policy and development activities have also encouraged the expansion of rice-fish productions.

### 3. Threats to the Biodiversity and Ecosystem of the System

The rice-fish farming area in China had increased from 667000 ha in 1959 to 985000 ha in 1986 and 1532000 ha in 2000<sup>7</sup>. However, it has decreased from 1532000 ha in 2000 to 1528000 ha in 2001 and 1480000 ha in 2002. The rice-fish farming system is threatened by expansion of highly productive mono rice or fish systems, which include improved rice or fish varieties with excessive application of chemicals (especially pesticides for rice and antibiotic medicines for fish) in rice fields or fish ponds.

The food safety, ecological functions and environment conservation are seriously undervalued. With chemicals, rice growers do not need to depend on fish to regulate pests and recycle nutrition. The intensive fish culture produces much fish at a low cost to the market. During last 20 years, the total aquatic production in China has increased by 8.7 times, but the prices of aquatic products have increased by only 4.4 times. As a result, the benefits by raising fish in the rice fields over the mono rice production are diminishing.

The management of rice-fish system needs more labor and village cooperation than the mono rice production. A survey in Jiangsu Province showed that only half of farmers who adopted rice-fish farming technologies in 2002 would prefer planting single rice or other crops to rice-fish farming in 2003. Some farmers claimed that if they dig the same area of rice field as a

fish pond, they would make more money than the rice-fish farming. Some farmers who used to practice rice-fish farming reported that they prefer buying fishery products in markets to raising fish in their rice fields. The additional labor for managing a rice-fish system is valued at nearly as same as the fish it would produce. For fish to reach the marketing size, farmers often need to continue to raise fish in the pond or rice field after rice is harvested. This competes for land and labor, which are increasingly scarce in rural China. The integrated rice-fish farming is further threatened by the monoculture of rice or fish with the decreasing costs of production. The cost reduction of the mono-culture is achieved through promotion of high-yield varieties and chemical inputs. The little gain from adopting the rice-fish culture undermines continuation of the rice-fish culture, especially in more developed areas.

The barriers to improvement include:

- There aren't laws and regulations specifically on GIAHS conservation, lacks the direct legal basis in the conservation process.
  - The ecology restores project didn't play the obvious role while the endangered species haven't got concrete protective measures. The main reason was the investment is insufficient and the research is still at the initial stage
  - The cultural diversity conservation was still at the initial stage, the local authority takes insufficiently it
- However, the government is encouraging farmers to continue the rice-fish culture as one of environmentally friendly technologies. The local government's agricultural extension agents, particularly in the poor areas, are making great effort to extend the technology of the rice-fish farming. Sometimes, the government's objective in ecological environment is not consistent with farmers' interest in profits.

Qingtian County is among the few counties where farmers still practice the traditional rice-fish farming technology as well as the new rice-fish farming technology they have adopted. The promotion of the rice-fish system has multiple benefits:

- Contribute to conserve this traditional agricultural heritage with associated cultures and biodiversity;
- Improve farmers' health with reduction of pesticide application;
- Increase farmers' income in the marginal regions where labour opportunity cost is low;
- Improve safety and nutrition of food products from the rice-fish system; and
- Develop potential approaches to managing this unique system, such as eco-tourism
- Foster a local and classical culture related rice-fish system, e.g. Field-fish lantern dancing



## 4. Activity Plan

The rice-fish farming of Longxian Village covers an area of 393mu in 2005, many were deserted as the labour loss. The population lived in the village is 491, while almost 200 people live in abroad now.

### 4.1 Commonly agreed objectives

- Establishment of institutional framework, participatory mechanisms and free prior informed consent of farming communities;
- PRA of GIAHS (functioning, characteristics, threats, and opportunities);
- Preliminary assessment of policy, regulatory, and incentive environments and the identification of supportive measures or removal of perverse incentives;
- Fine tuning of participatory methods and tools for monitoring, evaluation and implementation of the Full Scale Project;
- Capacity Building of vulnerable Stakeholders;
- Small priority activities that directly benefit farmers and encourage the participatory assessment and project formulation; and
- Determine the Field Coordinator.

### 4.2 Adaptive management strategies

- Resume the traditional rice and fish species: In recent years, agricultural diversity and its values have gained evolving understandings, and the agro-ecological, bio-

logical and cultural diversity has been addressed for its importance to the sustainable development and food security. Food security has been a main problem obsessed many people today. GIAHS must prevent the trend of nutrition and biodiversity decrease. In longxian village, there are altogether 393mu rice-fish field, as the project programmed, 60-70mu paddy fields would be forced to plant traditional rice species every year, and in six years later, all the rice-fish field will be refurbished by the traditional rice species before 1970s', such as Sanriqi, Red wanjin, etc.

- Develop the substitute industry: GIAHS will be established a self-support system by the project, we must find the way to substitute the traditional industry which can promote the development of GIAHS site. According to the experience and the situation of Longxian village, we propose that the eco-tourism and organic food production are two reasonable ways to go. While these two kinds of industry development need several years, thus a ecological compensation mechanism should be established first.

- Culture protection and succession: Culture is the base of the GIAHS site; the protection can not be really realized without culture collection and coordination. We will collect the folk tales and the convention, such as the tale of Longxian village, the fish lantern dance and so on; these culture forms are of significance for the rice-fish GIAHS conservation.

- The build of multi-stakeholder process: Structural conservation of Agriculture Heritage Systems the GIAHS initiative stands for a global concept; yet conservation happens through the establishment of national policy frameworks and local project implementation; GIAHS projects thus need support from international, national, local and village level. In virtue of all the organizations, the conservation can be realized.

- The build of national GIAHS mechanism: China is a large agricultural county with long history, there are many agricultural heritages in the process of its development, such as Mulberry base fish pond, pig-marsh gas-fruit, four-law-in-a-whole pattern and so on, are the precious experience from production. FAO plan to choose 100-150 GIAHS in the nearly 10-15 years, which will accelerate the declaration of Chinese agricultural heritages, we hope there will be 10 or even more GIAHS from china were elected. At the same time, China will build a national GIAHS mechanism, which will list all agricultural heritages with national significance, just like the World natural and cultural heritages. We'll try our best to conserve all the agricultural heritages as the programme planned.



### 4.3 Main activities

In national level:

#### 1. awareness raising

- Formulate the laws and regulations which specially aims at GIAHS, in order to conserve the agriculture biodiversity, the cultural diversity and make the specific stipulation to each kind of development operation, carry on the moderate development in the basis of conservation.

- Publicize the GIAHS through various media (TV, newspaper, network, etc)

#### 2. policy analysis / reform

- Take the suitable measure to accelerate natural reproduction according to the main goal district of land use.

- Enhance the county management and reform—new socialism countryside building.

#### 3. creation of a national framework for recognition and mainstreaming of GIAHS

Formulate the GIAHS project by a specific administration, like MOA. and the local government.

- Elect the national agricultural heritage system.

In site level:

#### 4. conservation measures and adaptive management strategies for the biodiversity and the ecosystem

- GIAHS can keep on serving a wide variety of functions by a approach called dynamic conservation .Dynamic conservation means making use of new chances to preserve century-old traditions. Tourism, eco-branded marketing, payment for environmental services and links between traditional and modern governance institutions can jointly provide enough resources to keep the GIAHS functioning.

#### 5. strengthening the traditional management system (traditional knowledge, social organization and institutions for the management of biodiversity and natural resources)

- Reuse the traditional species and the farming system in the pilot site

- Collect the traditional knowledge

- Reform the houses construction style of the pilot site.

- Re-plan the land use system especially for those rice-fish fields.

#### 6. livelihood / economic activities based on / compatible with the bio-physical and cultural characteristics of the GIAHS

- Traditional farming

- Stone carving

- Organic agriculture

- Eco-tourism

#### 7. creation of innovative institutional mechanisms in

*each pilot system for collection, management and publication of data and collaborative management on GIAHS between government, customary groups and civil society*

- We need form a team to conserve the rice-fish farming system, set down a set of programmes to monitor and evaluate the system conservation.

### 4.4 The methods for implementation, monitoring and evaluation

- To carry on the monitor and the comprehensive research of biodiversity and the ecosystem

- To conduct the relative research to protect the endangered species in order to maintain the equilibrium of ecological system, guarantee the function of the whole system.

- To establish specialized culture protection agency, carry on the culture resources general survey, and develop culture demonstration , cultural innovation and the special study

### 4.5 The communication plan

- Communicate with farmers

- Communicate with national universities and research institutes

- Communicate with international partners.

### 4.6 Managerial / institutional arrangements

- The member of the team is constituted of:

- The local government, local organizations such as villager group, and some corporations; local authorities, such as MOA of Qingtian county, ministry of water and electricity conservancy, ministry of tourism, town government, and the village committee and local experts; Their function is to provide policy and fund support to the rice-fish farming system conservation, take charge of the conservation planning; Organize agriculture production,

- The government authorities, such as MOA of China, Agricultural Technology Promotion Center of the MOA , MOA of Zhejiang province, State Environmental Protection Administration, National CBD and Biosafety office, National Biosafety Office, SEPA CITES Management Authority; Their function is to Provide policy, scientific technique and project formation support, offer opportunities of training and project evaluation. They are coordinator and supervisor, take charge of the comprehensive management.

- University and research institute, such as CAS,

Zhejiang University. They give the scientific support, set down the development planning according to the local resource advantage and developing potential in the different phase of the project accordingly.

- NGOs: Ecological Society of China, Chinese Society of Agro-ecological Environment Protection, Agricultural society of China, China Biodiversity Conservation Foundation, rice-fish farming system society. They provide the fund and technique support to the GIAHS, give suggestions to the management method, safeguard, as well as the on-the-spot instruction.

- International partners: China Council for International Cooperation on Environment and Development (CCI-CED). On one hand, public care for food safety and ecological conservation is now being addressed through policies on monitoring, eco-labelling (Green Food/Organic Food Programs) and eco-agricultural practices. In addition, ecotourism on agricultural landscape is also being promoted. There is good potential to integrate the traditional rice-fish culture into those new policy changes. On the other hand, much has to be done to identify and remove inappropriate policies, institutions, and technologies that encourage shifting rice-fish system to intensive mono rice or fish systems. The rice-fish system is widely practiced in many coun-

tries, especially in Asia. The extension of the system has potential to reducing use of POPs in agriculture. It maintains ecological functions of carbon and nutritional cycles, protects the field degradation, and hosts a variety of rice, fish and other associated species.

#### 4.7 Institutional co-ordination arrangements

Just as the graph (fig 1) shows, a multi-stakeholder process will be established to conserve the rice-fish farming system, and a set of programmes will be set down to monitor and evaluate the system conservation.

The members of the team constitutes of: Government authorities, local government, local organizations, University and research institute, NGOs, and International partners. They follows a up to down managing mechanism .MOA takes charge of the conservation on the whole, local government assistants it ,the NGOs, Inter national partner, universities and research centres provide the various support for the conservation of the system.

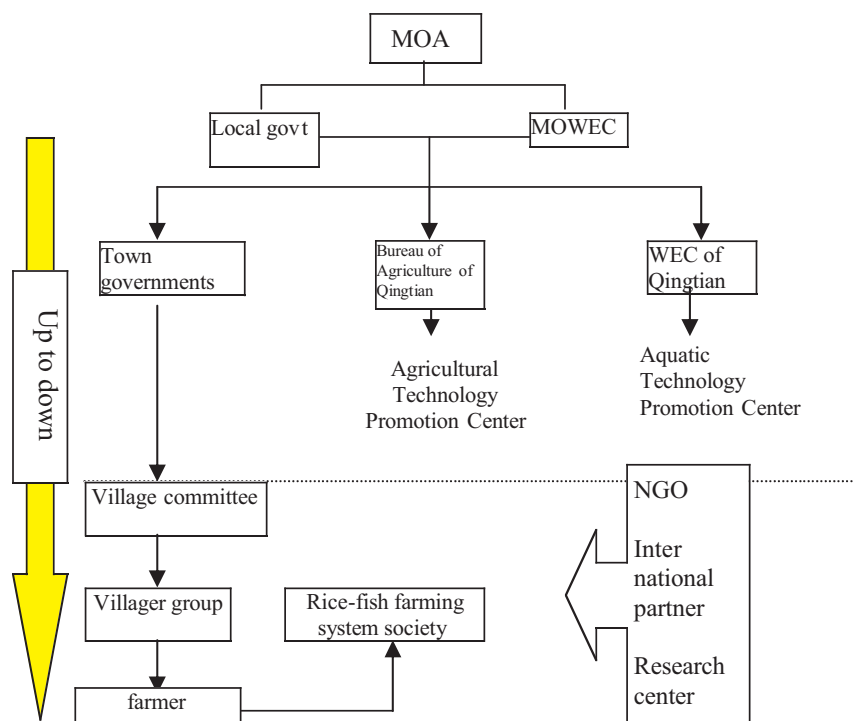


Fig.1The multi-stakeholder process stabilished to conserve the rice-fish farming system

The detail information are as follows:

<i>Level</i>	<i>Prime tasks</i>	<i>Support needed</i>	<i>Likely stakeholder</i>
National	<p>Develop a national policy framework and institutional support for GIAHS adaptive conservation</p> <p>Develop a national guideline on nomination, labelling and monitoring of GIAHS</p> <p>Develop a national research network on agricultural heritage</p> <p>Support governments of Zhejiang Province and Qingtian County for establishment of a sustainable GIAHS in the pilot site in Longxian</p>	<p>Internationally acknowledged framework, including labelling standards for GIAHS</p> <p>National political support</p> <p>Project finances</p>	<p><b>Managing department:</b> Ministry of Agriculture</p> <p><b>Technical support:</b> Chinese Academy of Sciences</p> <p><b>Other partners:</b> Ministry of Culture GEF focal point in Beijing NGOs FAO Rome FAO Beijing UNDP Beijing UNU/PLEC</p>
Provincial	<p>Mobilize provincial support to Qingtian County for establishment of a sustainable management system of GIAHS in Longxian</p> <p>Liaise between national and Qingtian County</p>	<p>National labelling/monitoring standards for GIAHS</p> <p>Provincial political support</p> <p>Project finances</p>	<p><b>Managing department:</b> Department of Agriculture of Zhejiang</p> <p><b>Technical support:</b> Zhejiang University</p>
County	<p>Develop supporting institutions for adaptive management of GIAHS in Longxian</p> <p>Develop and implement the adaptive management plan for GIAHS in Longxian</p> <p>Support communities to enhance multiple values of GIAHS as well as alternative livelihoods in Longxian</p>	<p>National labelling/monitoring standards for GIAHS</p> <p>Supporting national and provincial policies</p> <p>Technical support from academia</p> <p>Mandate to develop a GIAHS conservation initiative for international labelling</p> <p>Project finances</p>	<p><b>Managing department</b> Qingtian Government; Agriculture Bureau</p> <p><b>Other partners</b> Tourism Bureau; Water Bureau. Local businesses, etc.</p>
Community	<p>Develop adaptive management of its GIAHS (organic /ornamental agriculture, certification, product trading links, etc.) in Longxian</p> <p>Develop alternative livelihoods (natural links, cultural links, tourism, payment of environmental services) in Longxian</p>	<p>Facilitation for development of payment-for-services</p> <p>Clear standards of compliance for GIAHS labelling</p> <p>Technical support for re-inventing traditional practices (organic agriculture) in a future institutional setting</p>	<p>Communities in Lonxian</p> <p>Overseas Chinese network, Local businesses</p>

The forms of social organisation, customary institutions for ecosystem management included: to set up National Steering Committee, Technical Advisory Committee and Implementation Committee; took survey of the bio-diversity, land use type and land management, ecosystem functioning, local natural, social and economic situations.

Local government hold information meetings; gave the authority of Department of Agriculture of Qingtian County; they issued brochures and newsletters and took advantages of web-site, flyer for tourists, press releases and record media coverage to publicize the agriculture heritage. The local overseas Chinese establish a conservation organization called World Agricultural Heritage conservation Centre which can collect the donation of the overseas of Qingtian County to do the conservation work.



---

<sup>1</sup> The law system include the Land Management Law, Regulations for the Implementation of Land Management Law, Regulations for the Protection of Fundamental Farmland, Regulations for the Rehabilitation of Land, Provisional Regulations on Land Appreciation Tax, Measures for Management of the Construction-Used Land, etc..

<sup>2</sup> It is not like most of the developed countries, China's farmers still feed themselves by their grain productions. Rice and fish they produced in rice-fish farming usually as their important food. They only sell the surplus in the markets.

<sup>3</sup> Liang, Jiamian. *History of China's Agricultural Sciences and Technology*. Chinese Agricultural Press. Beijing. 1986. pp. 155-158.

<sup>4</sup> Cao Cao is the emperor of Wei in The Three Countries Dynasty.

<sup>5</sup> Mackay, T. Kenneth (editor), *Rice-Fish Culture in China*. IDRC. 1995. pp.4

<sup>3</sup> the year 1965-1975 also coincided with the cultural revolution. During this period, the raising of fish was considered a bourgeois way of making money and was officially discouraged. In addition, there were severe dislocations of research and extension during this period.

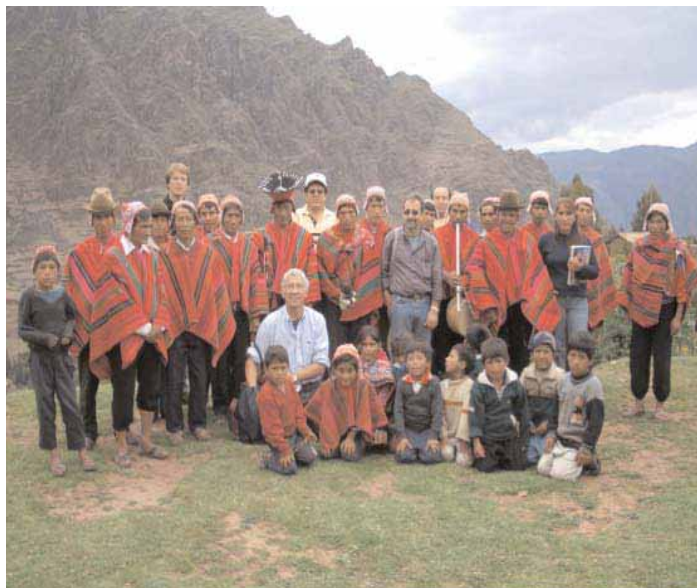
<sup>6</sup> MOA. Unpublished fishery state.



## Institutional Mechanism in Participating Countries for Dynamic Conservation of GIAHS

*Frank van Schoubroeck, Luohui Liang and Mary Jane de la Cruz*

---



## 1. Justification

The FAO-GIAHS project is ending its PDF-B phase, and approaching full implementation. In participating countries, practitioners need instructions for GIAHS project formulation and implementation. GIAHS background documentation is clear on the definition of GIAHSs and their importance. The earlier Project Framework provides some hints on possible activities of projects, but does not provide the clarity national, local and community level stakeholders need for project formulation and implementation. The mandate of Wageningen International in the global GIAHS project is to build capacity on Multi-Stakeholder Processes in various Pilot Sites (IAC and FAO, 2005).

In the field<sup>1</sup> it was observed that much participatory expertise (application of tools, involvement of a wide variety of stakeholders) is already in place or perceived unneeded in the particular situation. However, *project management structures* (plans, platforms, procedures) through which Multi-Stakeholder Processes were to be implemented were neither conceptualised nor very functional. They were followed common project implementation practice, with little appreciation of GIAHS characteristics: traditional populations that need support to establish a self-determining form of governance to continue and adapt the systems they base their lives on. The project is now departing from brainstorming and conceptualisation to active implementation of dynamic conservation.

This new phase justifies the development of a project implementation strategy that stands on the shoulders of past practitioners, and anticipates future development of the GIAHS initiative. This document draws on both literature on Multi-Stakeholder Processes (see Woodhill, in prep., and <http://portals.wi.wur.nl/mssp/>) and more explicitly literature on project management for institution building (SWAPs experiences in practice (e.g. Schoubroeck and Karna, 2003), Soft Systems Methodology (Checkland, 1999), Institution literature (e.g., Ostrom, 2005)). Furthermore, the document draws on GIAHS project documentation (FAO, 2002-2006, FAO, 2006) and suggestions from project implementers and experiences in China and The Philippines and FAO-GIAHS staff.

## 2. Project set-up methodology

### 2.1 Principles for building a GIAHS project implementation framework

The aim of GIAHS support projects is the

transformation of existing (threatened) Agriculture Heritage systems into future viable (flexible, adaptively managed) systems. We propose to adhere to the following principles in this effect:

- The GIAHS project promotes *self-determination* (i.e., the political dimension of poverty in OESO's DAC-criteria) of the GIAHS community through appropriate institutional adaptations, to enable the GIAHS community to develop their system according to contemporary needs
- Dynamic conservation of GIAHSs is a *global* concept; yet conservation happens through the establishment of *national* policy frameworks and *local* institution building to support *community level* dynamic conservation activities
- The GIAHS dynamic conservation concept provides an alternative to mainstream agriculture development
- GIAHS dynamic conservation is multi-disciplinary: agriculture / economy, biodiversity / environment, anthropology / culture and decentralisation / governance all interact in a single GIAHS site. The GIAHS community is in charge of combining these different disciplines into one coherent 'dynamic conservation' of their system.

The project will thus be organised as a "consortium of organisations" in a multi-layered network at international, national, local and community level. These organisations co-operate with the objective to foster self-determination of the GIAHS community (within the national legal framework).

### 2.2 Multi-Levelled structure of GIAHS projects

As the nature of project outcomes varies for different management levels, the project is best structured by defining different, complementing planning and implementation structures. In principle, higher-level structures formulate policy objectives, and delegate authority to lower level structures to enable GIAHS communities on the ground to maintain and adapt their own system. Operational levels include:

- The global level – that defines GIAHSs and communicates definition and recognition to lower levels
- The national level – that develops a national policy framework for dynamic conservation of GIAHSs (through local self-determination)
- The local (provincial, prefecture, region, district, county) level to develop institutions in support of GIAHSs
- The community level – to dynamically conserve GIAHSs

Thus, the project is organised *level-wise*; each level has its own *mandate* with an explicit *communication*



*protocol between levels*. Each level fulfil its mandate through the most appropriate management modality.

### 3. Project development methodology in practice

#### 3.1 Initiation of a GIAHS support project

Initiation of a GIAHS project typically starts with informal discussion and networking, and creating support for participation in the global GIAHS initiative. This process is often driven by experienced individuals and leads to informal support with practitioners such as FAO, national agencies, NGOs, local governments, and above all, the GIAHS community. The ownership of the *community level* initiative lays with the GIAHS community. The GIAHS community can embrace the opportunities that practitioners thus create.

The informal phase of project development results in:

- a network of organisations and individuals willing to implement a GIAHS support project
- the GIAHS community knowing about the opportunities and limitations of the GIAHS initiative, and
- a preliminary project proposal submitted to FAO

#### 3.2 Initiation of project structures

A first step in formalisation of the management structure is the selection of a National Focal Point Institution (NFPI). We propose the following procedure. When it is decided that a particular site will get project support, FAO-Rome instructs the national FAO-office to co-ordinate with an appropriate local high government office (e.g., the GEF focal point). These two institutions select the most appropriate organisation to act as the NFPI. The selecting national government institution should not take up the NFPI-position itself. Criteria for selection of an organisation include:

- Government or NGO institution with access to policy making processes and sympathy towards the GIAHS concept and project principles
- Willingness and capability to co-ordinate multi-stakeholder and multi-discipline processes, including likely access to funding
- Commitment to subsidiary principle: delegate management and implementation authority to the lowest appropriate level, and to the most appropriate authority, including GO, NGO, community, private sector, etc. The organisation is acceptable to other players in the sector as a co-ordinating agency
- No better such institution is available in the country, i.e., the selected institution is “the best” for GIAHS proj-

ect implementation

Selection of a national focal point is concluded by signing a Letter of Agreement between FAO and the NFPI which spells out the role division between organisations at national level.

#### 3.3 Developing action-level wise project structures

Tasks and structure of community, local and national action levels vary in nature, and their management will therefore be different. Yet, a few basic rules apply to all action levels:

Outcomes of a different nature for each level will be needed to achieve structural dynamic conservation of GIAHSs. Thus, national projects are best formulated for each action level separately; indicating the upward and downward linkages for each level. Table 1 suggests an elaborated list of tasks of separated action levels, along with the support levels need in order to fulfil their tasks.

The four different outcomes defined in the GIAHS project document coincide to some extent with the tasks each level has in the project, although particularly tasks of the local (government) level and the community level are not clearly separated. The project needs to specify tasks for community and local government level to enable them to practically implement activities. The elaboration of tasks from each level sheds some light on one more aspect of GIAHS project implementation. Even if GIAHS communities ultimately



**Table 1. Tasks for each action level to arrive at dynamic conservation of GIAHSs**

Action level	Prime tasks	Support needed	Likely stakeholders
Global	<p>Define international policy objectives and communicate them</p> <p>Develop a conceptual framework for GIAHS and site designation standards and procedures</p> <p>Control the quality of national (possibly local) GIAHS designation processes</p> <p>Develop GIAHS conservation scaling up mechanisms (Grossly outcome 1 and 4 of the Global Project Logframe)</p>	<p>Mandate to define and designate sites as GIAHSs</p> <p>Feed-back from national initiatives</p>	<p>FAO, GEF / other donors, nature INGOs, etc.</p>
National	<p>Develop national policies conducive to self-determination of GIAHS population</p> <p>Initiate GIAHS project structures</p> <p>Develop a national policy framework for GIAHS dynamic conservation</p> <p>Support local government initiatives to designate sites as GIAHS (Grossly outcome 3 of the Global Project Logframe)</p>	<p>Internationally acknowledged conceptual framework for GIAHS</p> <p>National political support</p> <p>Project finances</p>	<p>National Line Ministries, national FAO offices and GEF-focal point institutions, academe, INGOs</p>
Local	<p>Develop supporting institutions</p> <p>Initiate local GIAHS project structures</p> <p>Develop functioning supporting institutions for GIAHSs, such as financial mechanisms, land use planning, eco tourism planning, technical support</p>	<p>Standards for GIAHS site designation</p> <p>Supporting national policies</p> <p>Mandate to develop a GIAHS conservation initiative for listing</p> <p>Project finances</p>	<p>Local Government Units, local NGOs, academe, local businesses, etc.</p>
Community	<p>Dynamically conserve the GIAHS</p> <p>Operationalise self-determining political setting in which GIAHS project can support</p> <p>Operationalise institutional links to support dynamic conservation of the GIAHS (agriculture, natural links, cultural links, tourism / environmental services / product trading links, etc.) (Grossly outcome 2 of the Global Project logframe)</p>	<p>Self-determining rights</p> <p>Facilitation for development of payment-for-services</p> <p>Standards for GIAHS designation</p> <p>Technical support for re-inventing traditional practices in a future institutional setting</p>	<p>Local communities, local businesses, academe</p>

carry out conservation of GIAHSs, it is well possible that threats are caused by failures at other levels (e.g., blanket extension approach for green revolution techniques; no payment for environmental services; central planning rather than local self-governance). Thus, in particular instances policy level investments are justified. This notion fundamentally challenges some donors' prescription that certain minimum fractions of the project funds need to be invested in communities. This does not change the fact that GIAHS increased capacity to dynamically conserve the GIAHS is the ultimate proof of success.

### 3.4 Action-level wise project formulation

At each level, the Focal Point Institution coordinates project formulation for that level only. The level-wise project formulation covers grossly the points presented in Table 2.

The global GIAHS project developed a generic "GIAHS project framework" format, with an elaboration of the contents of this table. Focal Point Institutions may need facilitating support to put the GIAHS support programme in a proper project framework.

It is in this phase of project development that capacity building such as "Multi-Stakeholder Processes" may be very useful. The process follows general participatory methods, resulting in the commitment of relevant stakeholders.

### 3.5 Action-level wise project implementation

The PDF-B phase of the GIAHS project already invoked some limited implementation. The best way to formulate and develop projects is to start some limited activity, and look who you need for what you want to do. Donors however require first an elaborated plan, after which project implementation may start.

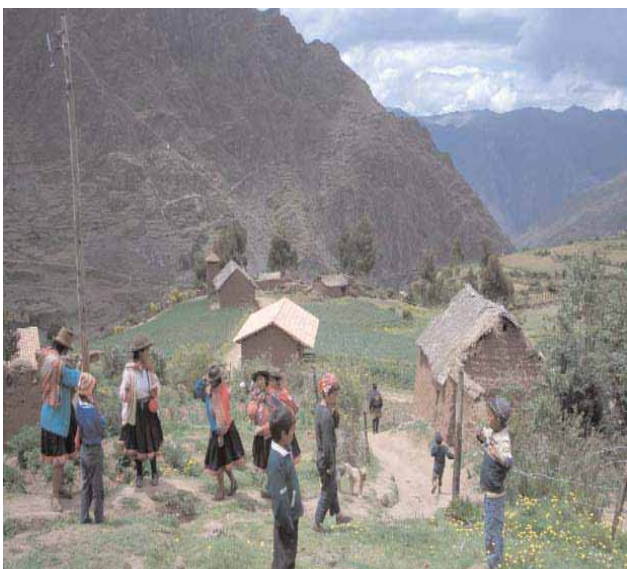
1. Vision	Overall GIAHS vision: self-determination of GIAHS community Vision for the necessary structural support from this particular management layer
2. Strategy	Overall strategy: what legal instruments will be used to increase self-determination of the GIAHS community? What will the economic underpinning of the local self-determination be? How will this particular layer contribute to the implementation of the strategy?
3. Logframe	Overview of outcomes and related activities and outputs Overview of necessary support from other action layers in the 'assumptions' section
4. Organisation and management	Links with higher levels (services expected) Links with lower levels (outputs and services expected) Main stakeholders and tentative role division Co-operation structure Financial management and administration Monitoring and learning structure

**Table 2. The building-up of a layer-level project plan**

### 3.6 Action levels require services from each other

An explicit layered project structure bears the risk that the project will not be carried out coherently. Individual layers (e.g., the national layer) may not fulfil its main tasks with great consequences at the local and community level. On the other hand, the rationale for “layering” the project is exactly to prevent incomplete project implementation. For example, if a project is strong in its field level implementation, while the national policy objectives are not met, it is partly successful – but not for long.

When the project is explicitly sliced in action lev-



els, levels can hold each other accountable, and eventually report failed functioning to the highest project structure. This implies that action levels are explicitly accountable to each other. Such accountability must be specified in the accounting structures of the project. Upward accountability is a standard feature in accounting – however, downward accountability (in the shape of creating conditions for functioning at lower levels and delegation of authority) is not a common feature. Much of the success of the GIAHS project will lay in the ultimate accountability of different project (i.e., governance) structures to the GIAHS community.

### 3.7 Withdrawal of project support

If the project takes sustainable impact seriously, it withdraws more and more from explicit support of the system. E.g., when national legislation is in place so, that GIAHS dynamic conservation (through local

government structures) have a legal base, the national tasks are over. The NFPI and other stakeholders can refrain from further action and keep informed about on-the-ground achievements, and give feed-back. Similarly, if ecotourism programmes start running, they are to be handed over to community-private partnerships, and the project withdraws, unless it is explicitly needed (for equity, further development, etc.)

Good project implementation implies a continuous uptake and handing over of institutional arrangements, so that by the end, the project can “naturally” phase out – without much impact on the daily flow of affairs. By the end of the project, institutions have developed in support of dynamic GIAHS conservation.

### 3.8 Summary – steps in project formation and withdrawal

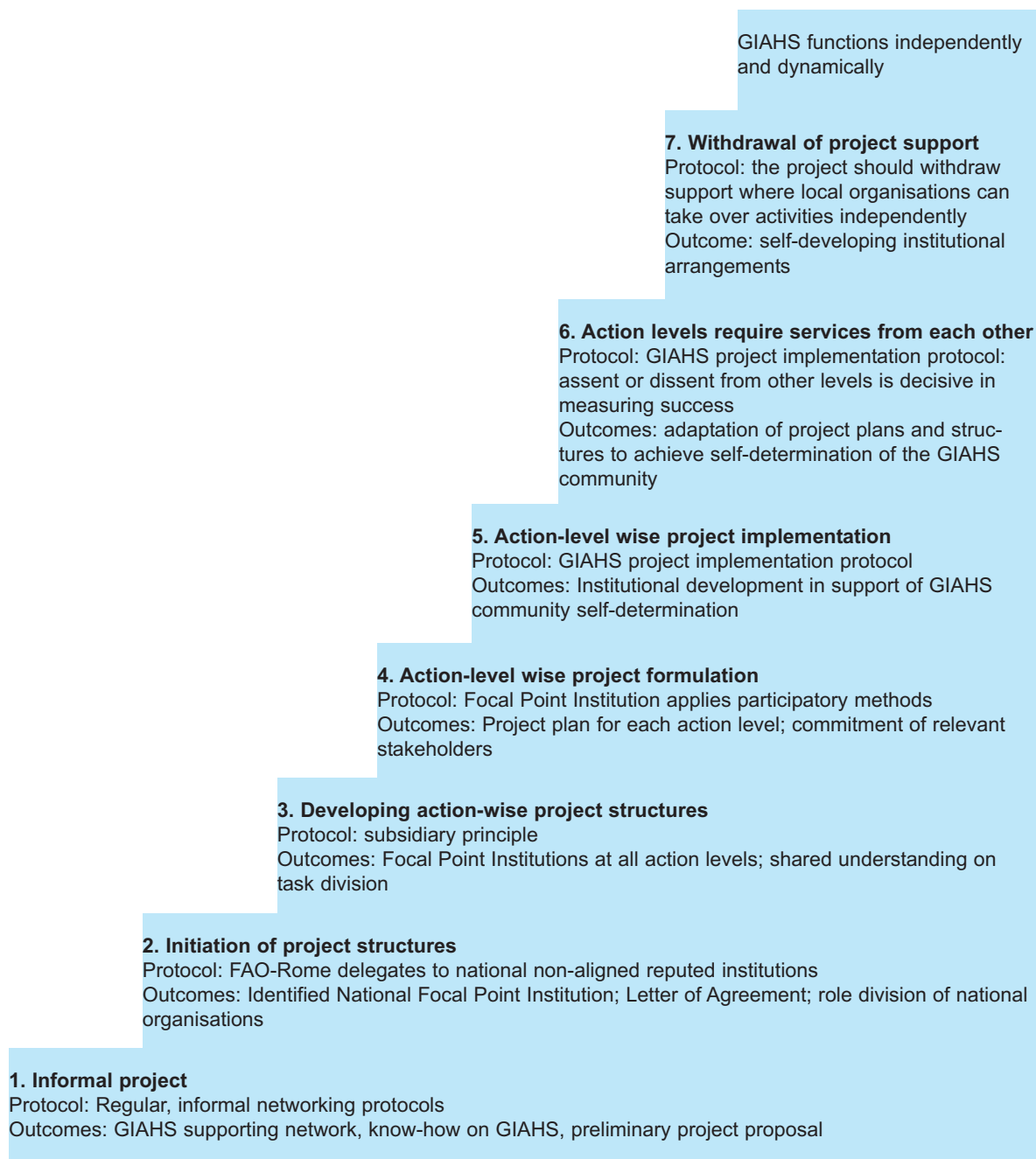
The previous sections cover the setting-up of project structures, and can be summarised in a flow of steps. Even if the project flow will be far more blurred in practice, the different steps indeed indicate the process to come to dynamic project structures, which keep addressing the needs of the moment in project implementation.

### 4. Protocol for GIAHS project implementation

The above elaborated project management methodology logically leads to a list of “do’s and don’ts.” These can be caught in a few “rules of thumb” that summarise some sort of Project Implementation Protocol. When entering a project cooperation, stakeholders are requested to take note and subscribe the protocol. This protocol is not a fixed set of rules. During project implementation, rules can be added, deleted or amended. Common practice and legislation are taken as starting point in the protocol. The protocol is to foster constructive co-operation between stakeholders to come to dynamic conservation of GIAHSs.

#### 4.1 The GIAHS community as the ultimate beneficiary of the project

- The GIAHS project promotes *self-determination* of the GIAHS community through appropriate institutional change
- The local government tailors services to support self-determination of the GIAHS community
- National line agencies channel their services to the GIAHS community in close co-operation with local government structures



**Figure1. Methodological steps for the formation of GIAHS support project structures.**

- NGOs engage in facilitating change of practices as an

intermediate between (local) government and the GIAHS community

- Scientists detect bottlenecks for GIAHS dynamic conservation, and support NGOs, local governments, national governments with information as well as skills / perspectives to achieve a sustainable GIAHS
- The GIAHS community, rather than following “mainstream” development, takes its own tradition serious and engages in developing a self-defined way of development and promotes this through legal involvement in local governance procedures

#### 4.2 The relation between management levels

- The project is organised level-wise differentiating between community, local, national and international action levels with an explicit communication protocol between levels
- Action levels get a mandate and authority from higher action levels, and tasks from both lower and higher action levels, including the task to organise itself most appropriately



#### 4.3 Co-operation between stakeholders

- Existing organisations develop a co-operation modality to implement the task of an action level
- At each level, one Focal Point Institution establishes and co-ordinates an appropriate steering mechanism to initiate a multi-stakeholder process resulting in a work plan with role divisions and mandates of individual stakeholders, integrating different expertise in fulfilment of the level’s mandate
- The implementing agencies report on their activities to the co-ordinating body; the focal point institution consolidates and reports to other action levels
- The focal point institution co-ordinates the action level project formation and learning
- Stakeholders respect the “best position” of other stakeholders and provide due space for manoeuvre for each stakeholder to support system development
- Stakeholders work actively to establish self-sustaining institutions and withdraw when their support need is over

#### 4.4 The formation of project structures

- Project establishes co-operation patterns that can develop into future mainstream working patterns
- “Prior informed consent” and “monitoring” of the project are carried out as a part of existing local accounting and reporting procedures
- When local governance procedures are not of the quality desired for project reporting, the project supports capacity building to improve their performance
- Additional project staff consolidates project reporting to donor institutions
- Specific project staff is hired for project-specific activities only; all major jobs are carried out by regular organisations in the area

#### 4.5 Financial management

- Financial support is managed as if it were a local fund
- paying fees at local level and respecting local implementation procedures
- Project financial flows and accounting routines follow standard local accounting patterns

#### 5. Inspiring references

Bedel, Jean Gabriel, 2004. The GIAHS programme in 20 questions. Internal FAO document, accessible at the GIAHS website, 16 pp.

Checkland, Peter, and Jim Scholes, 1999. *Soft Systems Methodology in Action*. John Wiley and Sons, Ltd., 329 pp.

FAO, 2002-2006. GIAHS website: <http://www.fao.org/AG/agL/agII/giahs/default.stm> accessed in February to September 2006.

FAO, 2006. Conservation and adaptive management of globally important agricultural heritage systems (GIAHS). UNDP Project Document, 50 pp.

Harrop, Stuart R., 2005. Globally Important Ingenious Agricultural Heritage Systems – an examination of their context in existing multilateral instruments. Internal FAO document, accessible at the GIAHS website, 16 pp.

Howard, Dr. Patricia Dr. Rajindra Puri, in prep. A Conceptual Framework For Approaching Globally Important, Ingenious Agricultural Heritage Systems (GIAHS). Internal working paper.

IAC and FAO, 2005. Conservation and Sustainable Management of Globally important Ingenious Agricultural Heritage Systems (GIAHS). Proposal for collaboration and co-funding at Programme Development stage (PDF-B).

Ostrom, 2005. *Understanding Institutional Diversity*. Princeton University Press, 355 pp.

Schoubroeck, Frank van, and A.L. Karna, 2003. Initiating co-ordination platforms for Forest Management in the Terai. *Banko Jankari*, Vol. 13 number 1, Department of Forest Research and Survey, Babar Mahal, Kathmandu.

Woodhill, Jim, 2005. Facilitating Complex Multi-Stakeholder Processes. A Social Learning Perspective. Working Document of Wageningen International, available at <http://portals.wi.wur.nl/msp>

---

<sup>1</sup> The field experience of this document is based on visits to China and The Philippines. The authors welcome further GIAHS pilot experiences.

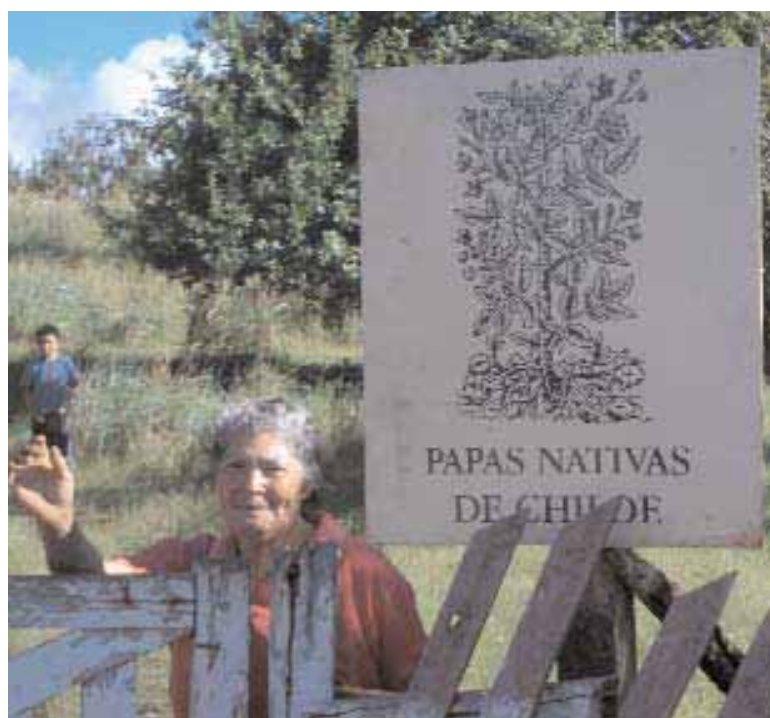




## Isla de Chiloé, Chile Sitios Ingeniosos de Patrimonio Agrícola Mundial, SIPAM

*Carlos Venegas*

---



## I. Introducción

El archipiélago de Chiloé conforma una de las 5 provincias de la X región de Los Lagos; se encuentra ubicado en el Sur de Chile, abrigando una superficie de 9.181 Km<sup>2</sup> (INE, 2006), que corresponden al 1.2% de la superficie nacional. Éste se compone de la isla grande y alrededor de 40 islas adyacentes de menor tamaño, de las cuales la gran mayoría se encuentran habitadas. Del total de su superficie, 66.9% está cubierta por bosque nativo y 27.4% por praderas y arbustos (CONAF, 1999). La mayor parte del territorio es de propiedad privada y se encuentra altamente subdividido ya que la mayoría de las propiedades corresponden a predios pequeños destinados a la pequeña agricultura. Según antecedentes obtenidos de la Gobernación Provincial de Chiloé (2004), de un total de 22.103 predios, 48% son menores de 8 hectáreas y casi el 88% son menores a 32 hectáreas. Chiloé cuenta con una extensa área protegida en la costa



occidental de la isla grande: El Parque Nacional Chiloé. Con una superficie de 43.057 hectáreas, que ofrece refugio para la flora y fauna nativa de la isla, es hogar de comunidades indígenas e importante atractivo turístico para la zona. La población de Chiloé alcanza a 154.766 habitantes (1.02% del total nacional) con la mayor proporción de habitantes rurales de la X Región (INE, 2003). La población original predominante en el archipiélago antes de la llegada de los españoles eran los Huilliches. El continuo proceso de mestizaje ocurrido en los últimos tres siglos ha asimilado parte de esta población, pero existen diversas áreas en el archipiélago donde la población Huilliche mantiene su

identidad como pueblo, especialmente en sectores rurales más apartados de la provincia.

En el resto del territorio queda la herencia genética y cultural de este pueblo asimilada dentro de la cultura chilota. De acuerdo a la información del Censo del año 2002 un total de 16.762 personas declararon pertenecer al pueblo mapuche/huilliche, lo cual equivale al 10,8% de la población provincial. (INE, 2006). Comparativamente hablando el porcentaje de población mapuche/huilliche de la provincia de Chiloé es superior al exhibido por la décima región que alcanza a un 9,5%. En relación a la distribución de la población que se declara pertenecer a la etnia mapuche/huilliche, un 58,9% de ésta se ubica en áreas rurales y un 41,1% en áreas urbanas.

## Recursos Naturales y Sistema Agrícola

La Isla Grande de Chiloé es un área de excepcional biodiversidad y riqueza de recursos naturales. Dentro de ellos, el bosque nativo destaca por su riqueza florística y por constituir el habitat de numerosas especies endémicas de flora y fauna. La cercanía al mar provee un clima benigno para la agricultura y también múltiples recursos como algas, peces y mariscos.

En suma, las comunidades rurales de Chiloé cuentan con un capital natural de gran riqueza que han sabido utilizar a través de los años desarrollando una doble vocación: la de agricultores y pescadores-recolectores. La estructura agrícola de Chiloé conserva las características propias de la pequeña agricultura familiar campesina en Latinoamérica, siendo altamente diversificada en cultivos de pequeña escala, poco tecnificada y orientada a la auto-subsistencia del grupo familiar. Dentro de los cultivos, la papa constituye la base de la alimentación familiar. Chiloé es uno de los centros de origen de la papa, y como tal, sus habitantes han desarrollado y perfeccionado el cultivo de más de 200 variedades de papas de distintos colores, formas y sabores.

El cultivo de la papa en Chiloé está asociado a principios agroecológicos. Las fechas de siembra y selección de semillas se rigen por las fases de la luna; el cultivo es asociado frecuentemente con leguminosas; las rotaciones con trigo y empastada permiten disminuir el daño de plagas y enfermedades; y el abono orgánico de pesebrera es incorporado en la preparación del suelo. Por otra parte, la reciente implementación de bancos de semilla de papas nativas ha estimulado la antigua práctica del intercambio de variedades entre los miembros de la comunidad y la revalorización de la especie. La papa nativa y el conocimiento asociado a su cultivo son temas de preocupación

para diversas iniciativas que trabajan por su conservación, transformándose en una nueva alternativa para revitalizar la agricultura campesina. La producción de hortalizas es de gran importancia para las familias campesinas.

La huerta no es solo una forma de autoabastecimiento de verduras frescas sino que también juega un rol fundamental en la salud de las familias campesinas ya que en ella se mantienen diversas hierbas medicinales para el tratamiento de enfermedades y dolencias. Las condiciones de aislamiento y dispersión geográfica de la población y por consiguiente el difícil acceso a los sistemas de salud pública, han motivado a las comunidades rurales al uso habitual de la medicina natural. En muchas ocasiones, la producción de hortalizas en huertas e invernaderos para su posterior comercialización en los centros urbanos de la Isla se ha transformado en una importante actividad y fuente de ingreso para las familias rurales.

La horticultura es una actividad casi exclusiva de la mujer, por lo tanto diversos programas de desarrollo han apoyado la construcción de invernaderos como una estrategia para el fortalecimiento de grupos vulnerables. La producción animal dentro del sistema productivo campesino cumple diversas funciones: genera alimentos para el consumo familiar, es fuerza de tracción para labores agrícolas, y constituye una forma de capitalización y ahorro.

Esto último es extremadamente importante en la seguridad económica de los campesinos ya que la venta de animales, especialmente vacunos, permite a la familia enfrentar gastos extraordinarios. La crianza de vacunos y ovinos es relativamente más importante con respecto a otros animales menores como cerdos, gallinas y patos. La producción de corderos es limitada al autoconsumo y ocasional venta en festividades, mientras que los bovinos se mantienen durante las etapas de cría o re-cría. Vacunos y ovinos son alimentados en base a pastoreo. La pradera naturalizada constituye la principal fuente de alimentación animal. Sin embargo, el escaso crecimiento invernal de la pradera es raramente compensado con alimentos suplementarios, creando un déficit alimentario en esta época. Algunos campesinos conservan heno para alimentar al ganado vacuno durante el invierno, pero las tecnologías de conservación de forraje aplicadas aún son muy rudimentarias para mantener la masa ganadera. Es por ello que la producción animal en Chiloé es altamente estacional: las pariciones ocurren generalmente en primavera y ocurre una descarga de animales antes del periodo invernal. El bosque es un recurso fundamental para las familias campesinas.

La leña es el principal combustible para calefac-

ción y la madera es el material predominante en la construcción de casas, embarcaciones, galpones y herramientas agrícolas. Además, el uso no forestal de los recursos del bosque es fundamental para la comunidad ya que los distintos árboles, arbustos, matorrales, frutos silvestres, enredaderas y hierbas proveen elementos que son usados con fines medicinales, para la fabricación de artesanías, como forraje para los animales, como tintes naturales y como alimento. Sin embargo, hoy existe una fuerte relación antagonista entre las necesidades agropecuarias y la conservación del bosque. Debido al escaso manejo y fertilización de praderas, y su consiguiente degradación, existe una creciente necesidad por "limpiar" sectores de bosque para habilitar nuevos terrenos cultivables.

Las mismas comunidades rurales observan un claro retroceso de los límites del bosque a causa de la expansión de las tierras agrícolas. Por otra parte, la escasez de los recursos forestales y el cambio en los rubros agrícolas tradicionales son la causa de la desaparición de algunas prácticas tradicionales en el mundo campesino. Junto a la disminución del bosque, antiguos oficios como la carpintería de ribera, la fabricación de artilugios en madera y la cestería presentan también una tendencia a la disminución.

Es por ello que programas de desarrollo intentan impulsar otras alternativas económicas para reducir la constante presión sobre el bosque y los terrenos agrícolas y permitir al mismo tiempo la mantención de estos tradicionales oficios. Si bien las condiciones climáticas y de aislamiento geográfico han motivado el desarrollo de sistemas productivos orientados al autoabastecimiento, las tendencias actuales han impulsado a muchos agricultores a comercializar su producción en los mercados locales y generar dinero en efectivo para adquirir bienes y servicios sobre sus necesidades básicas. En la mayoría de las ocasiones, los campesinos logran generar dinero en efectivo vendiendo los excedentes de su producción. Sin embargo, la desvalorización de los productos agrícolas, estimula a los jóvenes a buscar oportunidades de trabajo fuera del campo creando un déficit en la mano de obra agrícola y el abandono de muchas labores y tradiciones campesinas.

## **Dinámicas de Cambio**

Los procesos de cambio que hoy en día afectan el ordenamiento social y cultural de Chiloé tienen que ver con una serie de factores internos como también externos, que están afectando la vida y cultura tradicional del medio rural chilote, pero que a su vez, benefician a los ciudadanos que ven facilitadas sus

labores diarias y aumentada su calidad de vida gracias a avances en comunicaciones, salud y conectividad. Las principales causas de los proceso de cambio en Chiloé tienen su origen en el proceso de modernización que vive el país, en el sistema educativo implementado en las áreas rurales y en efectos propios del mercado.

En cuanto a la modernización se distinguen 4 procesos relevantes:

**Globalización:** hasta fines del siglo pasado, el mundo rural de Chiloé se mantenía relativamente aislado de lo que ocurría en el resto del país. Sin embargo, el gobierno actual ha impulsado políticas que apuntan a la conectividad de las zonas más alejadas del país, acercando así nuevas tendencias de consumo, costumbres y aspiraciones a los habitantes de Chiloé que muchas veces desplazan la identidad local.

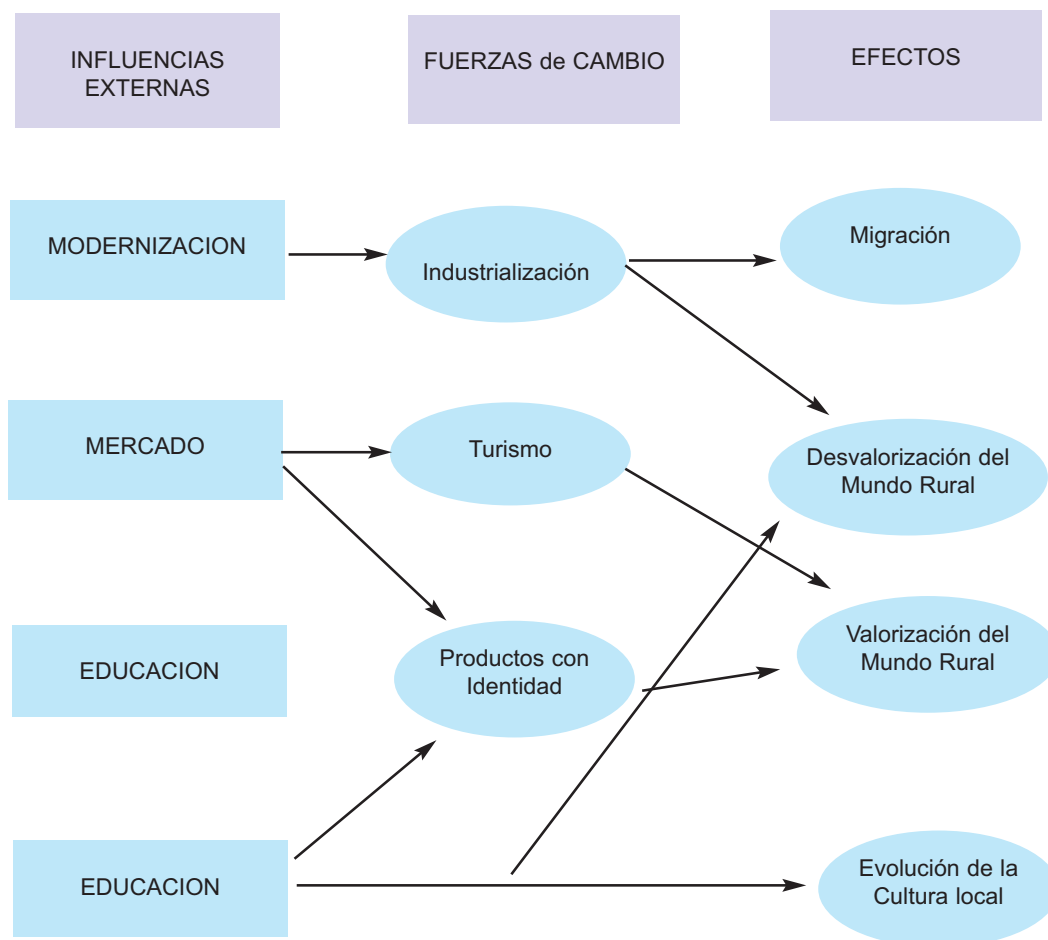
**Desvalorización de productos agrícolas:** la modernización también trae consigo la globalización de los mercados, provocando la desvalorización de muchos productos agrícolas y commodities que anteriormente fueron el sustento de comunidades rurales, como lo fue el trigo o la papa para los agricultores isleños hasta hace 30 años.

**Industrialización:** sin duda los principales ejes de industrialización en Chiloé son la salmonicultura y la mitilicultura. Desde fines de los años 80s se han instalado en Chiloé grandes empresas productoras de salmón convirtiendo a Chile en el segundo mayor productor mundial de salmones. Este vertiginoso desarrollo en los últimos veinte años, sumado a la llegada de la mitilicultura a fines de los años 90s, ha cambiado la relación de las poblaciones rurales con su habitual tradición agrícola-forestal, llevándolos a cambiar su condición de campesinos a asalariados bajo precarias condiciones laborales, desde el punto de vista de los ingresos como también de las condiciones en que la actividad se desarrolla. Otra externalidad negativa importante es la contaminación ambiental, ligada al funcionamiento especialmente de la empresa salmoneera, la que aún cuando ha realizado intentos de mejorar esta condición, todavía se mantiene en niveles de alto impacto al medio ambiente.

Existe también actividad de la empresa forestal para producción de tableros de maderas aglomerada, utilizando algunas especies del bosque nativo, sin campos propios, por lo que la producción se basa mayoritariamente en la compra de materia prima a agricultores que tienen recursos forestales en sus predios. Esto significa un impacto en la masa forestal que se va degradando por la ausencia de manejos apropiados y por que el poder comprador que es la empresa sólo adquiere la madera de mejor calidad.

**Urbanización:** fuertemente ligado al proceso de industrialización, en Chiloé existe un marcado proceso de urbanización ya que los habitantes de mundo rural, ligados tradicionalmente al trabajo de la tierra y el mar, migran hoy a los centros urbanos atraídos por los trabajos asalariados en la industria pesquera y acuícola. La disminución de la población rural, desde un 53% en 1992 hasta un 44% en el año 2002 evidencian esta tendencia. Por otra parte, el sistema educativo estimula la migración hacia centros urbanos. La mayoría de las zonas rurales en Chiloé carecen de establecimientos de educación secundaria y superior obligando a los niños a migrar a las ciudades para completar su formación. Además la educación impartida estimula el desarrollo de aptitudes y capacidades dirigidas al mundo urbano, generando una desvalorización de la cultura y el trabajo rural, y la consecuente migración de los jóvenes a la ciudad. Finalmente el mercado, a través de la creciente importancia del dinero en efectivo para la adquisición de bienes y servicios, es un importante factor de cambio en el mundo rural de Chiloé. Antiguamente el intercambio de productos y mano de obra agrícolas era fundamental en las sociedades rurales de la Isla. Sin embargo la necesidad de contar con productos y servicios antes inexistentes ha relevado la importancia del dinero y del trabajo asalariado. Esto afecta la relación de las comunidades con sus recursos naturales, ejerciendo una fuerte presión sobre los recursos naturales de la Isla.

Frente a las causas descritas anteriormente, el principal proceso de cambio que experimentan las comunidades rurales de Chiloé es el abandono de las labores agrícolas por trabajos asalariados, principalmente en la industria acuícola. En general las familias rurales buscan a lo menos una forma de ingreso de dinero en efectivo para complementar sus actividades agrícolas. Jóvenes y mujeres se emplean mayoritariamente en la industria, mientras los adultos y más viejos de la comunidad siguen trabajando en el campo en la actividad ganadera ovina y bovina y en los cultivos tradicionales de Chiloé. Si bien la alternativa de trabajo asalariado en la industria acuícola es atractiva para la comunidad rural, la opinión general sobre las condiciones de trabajo es negativa. En muchas ocasiones los jóvenes migran definitivamente a los centros urbanos o donde se ubican sus trabajos, dejando una población rural cada vez más envejecida y provocando la pérdida de muchas actividades agrícolas tradicionales y de los conocimientos ligados el medio rural y su cultura. Por el contrario, un elemento que ha posibilitado la permanencia de cierto porcentaje de la población en el medio rural es la mejora de la infraestructura rural. En esto han sido importantes los proyectos de



**Fig 1. Interrelaciones de las dinámicas de cambio presentes en Chiloé**

electrificación, que hoy día llegan a la mayoría de los sectores de Chiloé. La mejora de la red vial también ha permitido que la movilización pública llegue a los sectores aislados y mantiene conectados a los pobladores rurales a los centros urbanos. Ambos elementos, sumados al impacto de la telefonía móvil, generan condiciones que son reconocidas como una mejora de la calidad de vida de las familias rurales, y un elemento definitivo de la permanencia para las familias en sus lugares de origen. El proceso de migración también está ligado a las tendencias de valorización / desvalorización del medio rural. Por una parte, existen numerosas iniciativas en Chiloé que incentivan la valoriza-

ción del medio rural como redes de turismo, desarrollo de microempresas rurales, festivales costumbristas, fiestas religiosas, etc.

Estas iniciativas buscan la diferenciación de la cultura propia de Chiloé, de sus productos y servicios, en un intento de contrarrestar el proceso de globalización que genera una homogenización de la sociedad, logrando crear interesantes espacios de mercado para productos y servicios que valorizan el mundo rural y la identidad cultural de un territorio con características únicas como es el Archipiélago de Chiloé.

En particular el turismo se plantea como una interesante alternativa para el medio rural, generando

una posibilidad de rescatar tradiciones y la antigua cultura rural, que sin duda es un elemento diferenciador con respecto al resto del país. La Provincia de Chiloé posee características especiales y una identidad cultural que es reconocida por el resto del país, y poco a poco también es percibida como tal por los turistas extranjeros. Elementos como la gastronomía, la arquitectura, la biodiversidad presente en los bosques, la biodiversidad cultivada y el conocimiento asociado, la artesanía y el paisaje de islas y canales son características claves para el desarrollo del turismo en la provincia.

### **Amenazas, Oportunidades y Desafíos**

Las dinámicas de cambio actuales en la Isla Grande de Chiloé generan una serie de amenazas y oportunidades para la cultura y tradiciones del mundo rural.

#### **Amenazas**

El proceso de homogenización de la sociedad, propuesto por la corriente “globalizadora” de nuestra sociedad, atenta directamente contra la identidad cultural de Chiloé y sus tradiciones asociadas, al hacerse más atractivo pertenecer al mundo moderno y basado en la economía del consumo. La modernización del país y la tendencia a la generación de economías de escala, conllevan la llegada al mundo rural de Chiloé de una serie de nuevas tecnologías, de una expansión de las escalas de producción y de la introducción de nuevas variedades de cultivos. Todos estos cambios, de no ser adoptados con los debidos resguardos pueden llevar a una desaparición de las variedades endémicas, y la extinción de una tradición productiva única en el mundo.

La industrialización de la provincia de Chiloé, como único eje de desarrollo y crecimiento puede provocar una pérdida definitiva del conocimiento campesino al desincentivar la perpetuación de las labores del campo y a acentuar la desvalorización de la vida rural. Un programa educacional orientado al mundo urbano, sin una connotación de valorización de la identidad cultural de Chiloé, de sus tradiciones, sus costumbres y sus elementos naturales, es una amenaza para la supervivencia de estos valores en un mundo moderno y globalizado.

El despoblamiento del medio rural, debido a la atracción que ejercen las ciudades y los empleos asalariados es una amenaza para la mantención de una población rural activa, que sin duda otorga externalidades positivas y servicios ambientales que no son valo-

rados apropiadamente y son de primera importancia a la población urbana.

#### **Oportunidades**

Chiloé se presenta como un sitio único en el mundo donde se conserva latente una serie de elementos agronómicos, naturales, culturales y tradicionales que son fuente de soluciones alternativas frente a problemas del mundo moderno. El turismo se presenta como una gran oportunidad para Chiloé, ya que puede ser la alternativa económicamente viable de valorizar el conocimiento y las tradiciones campesinas, acercando el mundo rural a personas que viven en la ciudad y que han perdido el contacto con la naturaleza y la vida campesina.

Por otro lado, el turismo se inserta como un gran complemento de las formas de vida rurales actuales, que en general se basan en un sistema productivo diversificado, las cuales pueden incorporar esta actividad a su canasta de labores de cada año. La generación de una canasta de bienes y servicios que tengan y transmitan la Identidad de Chiloé, logrando diferenciarse del resto de los productos existentes en el mercado, es una oportunidad clara para el mundo rural. Productos como las papas nativas; el cordero chilote; el ajo chilote; las artesanías en lana, madera o cestería; son claros ejemplos de productos con oportunidades en los mercados nacionales e internacionales.

Además ellos pueden ser producidos bajo certificación orgánica, o bajo estándares de producción limpia, y agregárseles una rotulación característica de Chiloé. Existe un fuerte sentimiento de pertenencia a la Isla de Chiloé entre los habitantes del lugar, basado en una fuerte presencia de una cultura local única, y una serie de tradiciones y elementos característicos de Chiloé, todo lo cual genera una plataforma ideal para comenzar un proceso de diferenciación de estos elementos con el fin de capturar nuevos mercados, generando una salida económica, social y ambientalmente viable para las comunidades rurales.

#### **Desafíos**

Sin lugar a dudas el mayor desafío está en aunar criterios respecto a las prioridades para avanzar en el reconocimiento del valor del mundo rural, sus tradiciones y la relevancia del conocimiento campesino. Para enfrentar las diversas causas y fuerzas de cambio que están influyendo en el proceso de pérdida parcial de estos elementos, se requiere un diagnóstico claro respecto a lo que está pasando en el mundo rural.

Frente a lo complejo de las relaciones entre los distintos factores, se deben generar condiciones necesarias, para revertir los procesos de desintegración, expandiendo experiencias de educación rural y apoyo a sistemas productivos innovadores, diferenciados, que y la generación de un marco legal que permita definitivamente apoyar estos procesos, manteniendo las características culturales básicos de territorios como Chiloé que pueden hacer un aporte relevante a los modelos de agricultura mundial, impulsando un proceso genuino de desarrollo local.

### Recomendaciones de Políticas Públicas

Los organismos e instituciones del estado pueden aportar en diversas áreas del desarrollo rural, con el fin de reconocer la necesidad de mantener un mundo rural activo debido a los innumerables servicios que presta al país (alimentación, zonas de esparcimiento, agua potable, madera, aire limpio, protección a la erosión, entre muchos otros servicios ambientales).

En este sentido las políticas públicas deben incluir entre sus programas de desarrollo alternativas que promuevan y apoyen iniciativas que incluyan elementos del conocimiento tradicional campesino; generando valor agregado basado en elementos de la identidad cultural de los territorios rurales; incentivando la diferenciación de los productos y servicios basados en criterios de producción limpia u orgánica; impulsando reformas de los programas educacionales, de manera que integren elementos locales, culturales, históricos y de identidad de las comunidades que habitan un territorio definido.

Esto requiere la implementación de acciones como:

- Marco Regulatorio de otorgue certificación de origen a productos y servicio que provengan de un territorio con características especiales.
- Marco Regulatorio que proteja el patrimonio agrícola de una zona que muestre especies endémicas y características productivas únicas.
- Programas de apoyo con subsidios a la iniciación de actividades con valor agregado basado en la identidad cultural.
- Programas de certificación y fomento a la producción agrícola orgánica.
- Programas de certificación y fomento a la producción limpia.
- Reformas al sistema educativo, con adecuación en los planes de estudio.
- Creación de escuelas que generen las capacidades necesarias en el medio rural.
- Implementación en las Universidades de carreras ligadas al desarrollo del mundo rural.

- Normas sobre el cumplimiento de medidas de responsabilidad social y ambiental en las industrias locales.

Esta claro que hay procesos en el desarrollo actual del país que ya es imposible revertir, como el actual proceso de modernización, o la globalización de la cultura y los mercados, pero aprovechando las mismas oportunidades que estos procesos generan, se deben tomar medidas para poder proteger la identidad y las tradiciones locales, con el fin de preservar el patrimonio rural de las comunidades locales.



### Empoderamiento de las Comunidades Locales

Las dinámicas de cambio que están operando en la isla de Chiloé y que están produciendo transformaciones en el medio rural de Chiloé son fuertes y persistentes y están apoyadas en un modelo de desarrollo homogéneo para el país, que no alcanza a distinguir los matices regionales. Efectivamente se podrán producir transformaciones profundas e irreversibles, si es que no se articula una acción coordinada y sólida, donde la acción de las comunidades locales sea fuerte, informada, consistente, ejerciendo el derecho ciudadano a elegir las vías a través de las cuales se conjugan desarrollo y patrimonio, producto de muchos años de coevolución de las comunidades campesinas e indígenas de la Isla con su entorno natural. Esta posición activa de la comunidad local se debe

establecer a través de información clara y consistente acerca de las dinámicas de cambio que explícitamente o no, están modificando su entorno y la preservación de la cultura agraria de la isla. Las comunidades organizadas deben mostrar la potencialidad de sus conocimientos y sus modos de producción tradicionales; pueden realizar una demanda ordenada y propositiva a las instituciones y autoridades con responsabilidades en el desarrollo rural; deben demostrar a través de experiencias exitosas de que es posible otro desarrollo para el archipiélago. Todo este trabajo realizado con plena conciencia de los aportes que pueden hacer a la cultura agraria del país y de la humanidad, es un elemento vital a considerar en una estrategia orientada a la valoración y conservación dinámica que el proyecto SIPAM ha consensuado con instituciones y comunidades en la Isla. Todas las tareas que conduzcan a lograr una comunidad plenamente conciente y activa en la protección de los rasgos esenciales de este territorio, y junto con ello mantener vigente una enorme potencialidad para lograr un desarrollo sustentable y equitativo, son una prioridad y una necesidad fundamental para darle viabilidad al logro de los objetivos del proyecto SIPAM en Chiloé.

Alrededor de esta comunidad capaz de dialogar y de exigir, se podrán articular instituciones, y se podrán generar políticas de apoyo que permitan crear las mejores posibilidades para concretar los objetivos globales del proyecto.

## Bibliografía

- Agraria. (1990). Situación actual y perspectivas del sector campesino en Chiloé. Santiago de Chile.
- Armesto, J., Smith-Ramirez, C., & Rozzi, R. (2001). Conservación strategies for biodiversity and indigenous people in Chilean forest ecosystems. *Journal of the Royal Society of New Zealand*, 31(4), 865-877.
- Armesto, J., Villagran, C., & Arroyo, M. K. (1996). *Ecología de los bosque nativos de Chile*. Santiago de Chile: Editorial Universitaria.
- Bannister, A. (2005) *Rural Livelihoods and Natural Resource Sustainability, A case study of two Communities on Chiloe Island*. Institute of Natural Resources. Massey University. New Zealand.
- DFID. (2001). *Sustainable Livelihoods Guidance Sheets*. London, UK: Department for International Development.
- Ellis, F. (2000). *Rural Livelihoods and Diversity in developing Countries*. New York: Oxford University Press.
- Gobernación Provincial Chiloe. (2004). *Plan de desarrollo de Chiloe, Sectores Productivos (Development Plan of Chiloe, Productive sectors)*. De: <http://www.gobernaciondechiloe.cl/>
- INE. (2003). *Censo 2002*. De : [www.ine.cl](http://www.ine.cl)
- MIDEPLAN. (1998). *Caracterización de la Pobreza e Indigencia en Chile*. De: [http://www.mideplan.cl/sitio/Sitio/indicadores/htm/indicadores\\_indicadores.htm](http://www.mideplan.cl/sitio/Sitio/indicadores/htm/indicadores_indicadores.htm)
- MIDEPLAN. (2000). *Indicadores Económicos y Sociales*. De: [http://www.wds.worldbank.org/servlet/WDS\\_IBank\\_Servlet?pcont=details&eid=000009265\\_3961005091434](http://www.wds.worldbank.org/servlet/WDS_IBank_Servlet?pcont=details&eid=000009265_3961005091434)
- MIDEPLAN. (2002). *Síntesis de los principales enfoques, métodos y estrategias para la superación de la pobreza*. De: [www.mideplan.cl](http://www.mideplan.cl)
- Oyarzun, K. A. (2000). *Sistema de Producción, Territorio y Estrategia de subsistencia de la comunidad de Rahue, Localidad de Cucao, Chiloe*. Universidad Austral, Valdivia, Chile.
- SalmonChile AG. (2004). *Exportaciones de Salmón 2004*. De: <http://www.salmonchile.cl/>
- Venegas, S. J. (2000). *Relación de productos primarios del bosque, en tres comunidades de Chiloé, según subsistema de producción campesina.*, Universidad Austral, Valdivia, Chile.



# China's GIAHS Conservation: Practices and Experiences

## *Taking Traditional Rice-fish Agriculture as an Example*

*Qingwen Min*

---



## Long History of Agricultural Development and Plentiful Agricultural Heritages

With a long history of thousands of agricultural development, Chinese farmers have been searching many agricultural practices adaptive to different natural conditions. These practices or models are not only the synthetic application of traditional Chinese philosophy but also the foundation of modern ecological agriculture which has much positive influences on the sustainable agriculture movement throughout the world. Among the plenty of traditional agricultural models, rice-fish agriculture is a typical one which has been chosen as one pilot site of GIAHS project.

In Asia fish has been farmed in wet rice fields over a long history. A Chinese clay plate dating to the Han Dynasty 2000 years ago shows a fish swimming from its pond into a rice field. Ecological symbiosis exists in the traditional rice-fish agricultural system: fish provides fertilizer to rice, regulates micro-climatic conditions, softens the soil, disturbs the water, and eats larvae and weeds in the flooded fields; rice provides shade and food for fish. Furthermore, multiple products and ecological services from the co-ecosystems are beneficial to local farmers and the environment. The high quality food of fish and rice are helpful to maintain farmers' nutrient and living standard: the reduced cost and labour increases the productive efficiency, and, especially, the reduction of chemical fertilizers, pesticides and herbicides for insect and weed control helps in agro-biological conservation and field environmental protection. The rice-fish system in Longxian Village of Zhejiang Province demonstrates an ingenious approach to generating ecological, economic and social benefits through encouraging essential ecological functions.

Apart from this, the others include karez (an irrigation system of wells connected by underground channels), dike-pond system (a complex system with silkworm, fish, pond, mulberry), intercropping, terrace planting, agroforestry and so on. However, many traditional agricultural practices are facing much threatens from the impact of development idea and modern agricultural techniques and some are almost disappearance. For example, the rapid industrialization and urbanization made the dike-pond system in The Pearl River Delta area decrease from more than two million ha in 1950s to less than 200 ha at present. The other example is the traditional rice-fish agriculture. The total area of rice-fish in China increase from 0.667 million ha in 1959 to 0.985 million in 1986 and 1.532 million in 2000, but decrease since 2000. The current area is less than 1.4 million ha.



### Main Efforts Done

Along with the international movement of sustainable development since 1980s, different levels of Chinese governments actively have been promoting to the development and extension of traditional agricultural practices. At the same time many ecologists and agronomists have been studying this field. Just for this reason, a new scientific branch called China's eco-agriculture (which is similar to the so called GIAHS in nature) emerged and was gradually perfected. In recent years, the Center for Chinese Agricultural Policy and the new established Center for Natural and Cultural Heritage affiliated to the Institute of Geographic Sciences, Chinese Academy of Sciences, have been summarizing the eco-agricultural models and published some research reports, for example, *Agroforestry in China*, *Agro-ecological Farming Systems in China*, *Eco-agriculture: The Theories and Practices of Sustainable Agriculture in China*, *Techniques and Models of Eco-agriculture* and so forth. Since 2004 some scientists have been making efforts in Rice-fish Agriculture. The works about this project since June 2005 are as following:

June 9-11, 2005, The Workshop on Inception of Rice-fish Agricultural System was held in Hangzhou and Qingtian. Many media reported this activity and obtained great response. Later, a book about this activity was edited and printed by Qingtian County. The county-based local committee and CNACH-based Scientific Committee for GIAHS conservation have

been established. The National Committee and Provincial Committee will be established before long. Also, the Center for World Agricultural Heritage was established by some local farmers and overseas Chinese. Related research activities have been made and some research reports have been finished. The ecological mechanism and adaptive management of the rice-fish system have been listed the National Foundation Research Project (973) and Knowledge Innovation Project of CAS respectively. Up to now, 5 papers published or will be published in some Chinese journals like *Journal of Geographical Research*, *Resources Research*, *Ecological Economy* and *Regional Research and Development*.



Some investigations have been made during PDF-B including agricultural biodiversity, social and economic conditions, willing to pay of local farmers and outside tourists, micro-climatic conditions, and field ecological elements. Some training courses were made for local governors, farmers and other stakeholders. The master plan for rice-fish system conservation and the national framework for GIAHS project have been made. The Workshop of Natural and Cultural Heritage Conservation was held in June 10, 2006, the first Chinese Cultural Heritage Day. Many representatives from international organizations, government organizations, universities and research institutions participated the workshop. *Science and Technology Daily* and *Science Times* reported this activity. July 28-30, 2006, the Multi-stakeholders Process Workshop on Rice-fish Agriculture was held in Qingtian. *Guangming Daily*, *Science and Technology Daily* and local media reported this activity. Based on the reports in this workshop and other related materials, *Muli-Stakeholders Process for the Conservation of GIAHS*, the first book of *Series of Agricultural Heritage Research* was printed by Chinese Environmental Sciences Press. Just as

mentioned before, China has plenty of traditional agricultural heritage systems. We will try to systematically make research about China's different kinds of agricultural heritage systems based on the GIAHS project and the support from Ministry of Agriculture, Chinese Academy of Sciences and other institutions.

### Some Experiences

#### Government Support and Policy Perfection are the



#### Strong Guarantee for GIAHS Conservation

In recent years, some policies like eco-agriculture development, agricultural eco-environmental protection, well-off society building, harmony society building, and especially the new socialism countryside building provide important opportunity and strong support for GIAHS conservation.

For example, after listed as one of the first pilot sites of GIAHS conservation, Longxian was listed as the experiment site of New Socialism Countryside Building. And, Fangshan Township is applying to the Environment-friendly Township site. These combination will help to the village can obtain more support from local governments.

#### Multiple Participation is the base for Co-burdening Responsibility and Sharing Benefits of GIAHS Conservation

GIAHS conservation relates to different stakeholders including at least local farmers, enterprisers, scientists, governors. Multiple participation will play a very important role for the successful conservation. Based on the investigation and interviewing with different stakeholders, responsibilities, tasks and benefits of

different stakeholders from the GIAHS conservation can be determined.

### **Traditional Cultural Passing-and-Following Plays Essential Role for Long-term Conservation of GIAHS**

A GIAHS is the synthetic system consisting of natural ecological conditions, agronomic techniques, economic growth, social progress, and cultural passing and following. Many experiences and lessons demonstrate that culture conservation is the key aspect of the GIAHS evolution and conservation. The same situation exists in the rice-fish agriculture in Qingtian. The traditional culture forms related rice-fish system include the typical diet culture (dried sliced fish, field fish dishes), folk arts (song, dance and stone carving), folk habitude, proverbs, hymeneal cultures, traditional farm tools, and so on.

### **Scientific Research and Technical Popularization Infuse New Vitality of Traditional Agricultural Practices**



Differing from other kinds of cultural heritage, a GIAHS must evolution with social and economic development. Therefore, scientific research and technical popularization will be helpful to the evaluation of GIAHS and its demonstration to other regions and adaptation to natural change. As to Qingtian's rice-fish agriculture, some scientists are making the researches about the reciprocity mechanism between rice and fish, social and economic influences on the system, interactions between natural conditions and cultural elements, and development of the traditional system in modern

times For example, in the rice-fish system, rice and fish species have been developing, the density and timeliness of rice planting and fish breeding are more rational, and in many regions similar models have been developed liking rice-duck system, rice-crab system, and rice-duckweed-fish.

### **Realization of Multi-values of GIAHS and Relevant Industrial Development Provide Economic Base for GIAHS Conservation**

Multi-values exist in the traditional agricultural systems. For example, a rice-fish system could provide economic values (safe rice and fish products), social values (labour occupation), ecological (rich biodiversity, good field environment), and cultural values (amusement) for human. The relative industrial development would promote the realization of these potential values and be helpful to the conservation. Longxian village is the typical one. There are five kinds of tourism resources: rice-fish system for research and education, field fish dishes, the surrounding landscape, old mountain village, and typical folk-custom culture. In 1999, the village was granted as the name of "China's Field-fish Village" which attracts adjacent tourists to degustation and visit. The fact that Longxian village was chosen as one of the first GIAHS sites stimulates the village tourism development. According to our investigation in early October of 2005 and 2006 separately, the tourists is increased by a specified number of times. Some local farmers obtain much more income than before only relying on field production.

Thanks to the traditional production methods and tools, and little use of chemicals and much use of organic fertilizers, the eminent eco-environmental conditions would be the base for the development of organic agriculture. The healthy and safe agricultural products could make the local farmers get more income.

Special thanks to Academician and Professor Li Wenhua for his encouragement and guidance, to my doctoral and master students Sun Yehong, Geng Yanhui, Zhang Dan, Zheng Zhaoxia, Qin Xiangdong and Yang Guangmei for their hard works in literature review and field investigation, to Professor Han Yufeng from IGSNRR, Professor Chen Xin from Zhejiang University, Dr. Zhu Hongqi from Tsinghua University for their help in investigation, to Mr. Zhong Qiu hao and Mr. Wang Xuhai from Qingtian County for their collaboration.

# Ifugao Rice Terraces: Agricultural Heritage Systems dynamic conservation and practices

*Samuel Peñafiel*

---



## Introduction

An outstanding upland agroecosystem using indigenous forest watershed management, irrigation and bench terracing engineering principles has been practiced for over 2,000 years in the landlocked mountainous province of Ifugao in the cordillera region of Northern Luzon Philippines. It is a product of the ingenuity, dedication and industriousness of the Ifugaos in response to a mountainous habitat. The Muyong/Pinugo - rice terraces farming system occurring at an elevation above 1,000 m above sea level is a series of benches of irrigated terraces carved out following the contour of the mountain slopes which are devoted to growing rice. The terraced rice paddies in the municipalities of Banaue, Hingyon, Hongduan, Kiangan, Lagawe, Mayoyao and Tinoc cover a surface area of approximately 20,000 hectares. All have withstood over time the forces of nature such as the alternating annual heavy monsoon rains followed by rainless months and the occurrences of earthquakes. Today this marvelous irrigation and upland rice farming system remains generally stable although there are now threats to its future as an agroecosystem. In 1996, the Ifugao Rice Terraces was declared a World Heritage Site by the UNESCO.

## Ifugao Rice Terraces Mountain Landscape

The major characteristics of the Ifugao Rice Terraces mountain landscape are the series of paddy rice terraces constructed along the contours of the mountain slopes and the forests locally called Muyong and Pinugo on the upper portions of the terraced farm (payoh) and on the ridges of the mountain slopes. One can also notice intermittent small patches of swidden farms. The terraces located at the lower portions of the slopes are wider and supported by stone retaining walls. As the slopes get steeper narrower paddies which are sometimes less than two meters wide occur and are not supported by stonewalls. The spaces between terraces along the slope vary less than 0.5 m and sometimes reaching as high as 5 meters.

## Irrigation Water

Water that is fed to irrigate the terraced rice paddies come from the streams, creeks and rivers in the forested sub watersheds which are made up of family woodlots called Muyong and Pinugo (natural forests) that dominate the ridges and upper parts of the mountains. The water is diverted to small canals and flows to terraces and to next lower terraces. The ter-

racess/paddies supplied by a common irrigation system is called a payoh-cha. The terraces are supplied with water all year round even after harvesting to keep the soil wet. The reasons for this are two fold: 1) to avoid drying and cracking of the soil which may cause the terrace to collapse as introduction of water causes soil to expand and 2) to induce faster decomposition of rice straws which are left buried in the paddies after harvesting. Members of the village are assigned to clean and maintain the irrigation canals and others are assigned to watch any diversion of water to other terraces. As compared to ordinary upland farming, terracing as practiced by the Ifugaos has been a soil conservation practice that significantly minimized soil erosion.



## Rice Farming

The Ifugaos are a tribe with a rich culture. Numerous centuries old rituals are performed in their rice growing. The rice culture leader called tomona determines the start of the planting season. Rice planting season is ushered in by the tunod ritual in the tumun-ok or payoh which is the main terrace selected hundreds of years ago from among those belonging to the kadangyan (nobility). A statue of a rice god called bulol in a sitting position is touched by the hand with blood from butchered chicken or pig. Seeding starts in the months of November and December and planting of rice seedlings commences in January and February. The planting calendar must be strictly observed so that the terraces are fully planted and the pests are distributed resulting in less destruction.

There are about 9 indigenous rice varieties grown and the most popular is the tinawon, a fragrant native upland variety. Most farmers follow a single cropping per year although a few can grow two croppings. Also, harvesting in all the paddies has to be

completed as soon as possible to deprive rodents of food causing them to starve and die or migrate to other places. Attempts by the Department of Agriculture to introduce new varieties have so far received very low acceptance due to its non-compatibility with traditional way of rice culture. Paddy field preparation is done using spades. Weeding and pest control are done with the bare hands. No inorganic fertilizers and pesticides are applied. Rice straw from previous harvests are left in the paddies and pressed to the terraces to decompose. The nitrogen fixing azolla are abundantly growing in the rice terraces. In the wider rice terraces, native fish and shellfish species are allowed to grow. According to Ngidio (1998) the raising of the native fish dalag is made possible thru the Luhok technology which involves the digging of pits more than 1 foot deep in the terraces. The pits are fenced with plant materials to corral the fish. Three months after planting, a ritual called paad is performed in the main village granary in the belief that it will result in good grain production and maturity. It is worthy to note that this ritual also binds villagers not to eat fish and shellfish during the rice growing season. This allows the aquatic life to reproduce and its population to increase (off season fishing). Crop diversification is also being practiced in the rice farming through the construction of low mud mounds or ditches made out of decaying rice and other plant materials.

These are planted to vegetables and root crops like taro. There are other rituals performed after planting until harvest. According to local tribes, a native priest called mumbaki performs the tungoh (rest day) ritual in mid-April or the post planting rituals called gotad or kulpi. Farm labor is provided by group effort (ubbu) among neighbors, families/clans. Men do the site preparations including irrigation ditch and terrace maintenance while women help in the weeding, pest control and harvesting. Another group called the bad-dang helps in constructing and maintaining the terraced walls and canals. Others act as monitors for the canals checking on a daily basis the clogging of the canals and to guard against diversion of the water to other canals.

### **The Muyong / Pinugo– Private Forests**

The life support system for the Ifugao rice terraces are the muyongs or family forests/woodlots that are traditionally owned by the ifugaos who also own rice terraces. It is therefore common to see small forests above the upper most rice terraces. The muyong and pinugo are maintained as forest cover for the watersheds that supply the irrigation water of the ter-

aces. In addition, the woodlots are sources of fuelwood, timber for house and granary construction and food.

The sizes of the muyongs vary from about 0.50 hectare to as large as 2.50 hectares (Dacawi 1982; Klock and Tindungan 1999).

In order to maintain the integrity of muyongs an entire area is to be inherited and cannot be subdivided into smaller area. Muyongs are natural forests that evolved through natural plant succession and are rich in biodiversity. According to Rondolo (2001) as many as 264 species belonging to 71 plant families have been recorded in muyongs. Several species of rattan (*Calamus*) are also commonly grown. In recent times, exotic tree species such as *Gmelina arborea*, *Swietenia macrophylla* and *Samanea saman* are planted in the muyongs. Likewise, for so many years coffee, cocoa, betel palm (*Areca catechu*), citrus and ikmo (*Piper spp.*) have been integrated making muyongs an agroforestry system.

Owners of muyong harvest or cut only the trees or plants they need according to use e.g. for lumber the big trees and for fuelwood only branches. For the felled trees, the branches are cut into smaller sizes bundled and utilized as fuelwood whereas the twigs and leaves are left to decompose in the woodlot. Neighbors are allowed to collect fuelwood and other plant products provided they ask permission from the owners. Access to and resource uses are based on customary laws and traditional socio and political structures.



The Ifugaos also tend their muyongs at times when their rice fields do not require labor. They prune the branches of trees, cut the vines that interfere with the growth of the trees and plant additional seedlings when necessary.

Among the plant species recorded in muyongs,

171 are for fuelwood, 11 species for construction and woodcarving, another 70 species as sources of food, 10 species of rattan used for food, basketry and tying and 45 species are used for herbal medicine (Rondolo 2001). The Muyongs are also sources of natural pesticides that are used in their rice culture. Researchers of the Department of Environment and Natural Resources are closely working with farmers of their discovery of a plant that kills destructive alien snails feeding on young rice plants. The natural forest in the ridges is the habitat of the striped shrew rat (*Chrotomys whitebeadi*) which feeds on giant earthworms and golden apple snails. The Ifugaos are known for their wood carving skills and a wood carving industry thrives in the locality especially with the opening of the rice terraces to tourists.

The source of wood for woodcarving industry comes from the muyong, however, the demand for raw materials have alarmed government agencies due to the increase in tree cuttings within the muyongs. In 1996, the Department of Environment and Natural Resources after recognizing the traditional forest ownership and indigenous forest management system of the Ifugaos formulated a special cutting policy that allows the issuance of permits for the cutting of trees in the muyongs. Swidden farming (*umah*) is also practiced by the Ifugaos but in a limited scale. The *umahs* are small patches of forest clearings and are surrounded by muyongs. These are planted to sweet potatoes, taro, banana and some legumes.

During fallow periods seeds from the adjacent woodlots will regenerate the *umah* and new muyongs are later allowed to develop.



### Dynamic Conservation and Practices

From the Ifugao rice terraces production system and muyong/pinugo forest management the following are some indigenous conservation and prac-

tices:

- Terracing of the mountain slopes stabilizes the slopes and prevents surface soil erosion. It helps maintain clear water in the creeks and rivers;
- Irrigation water is maintained throughout the year in the terraces to prevent their collapse.
- Maintaining muyongs and pinugos is a good watershed management practice that sustains the water needs of the rice terraces and control streamflow during heavy rains.
- The imposition of paad (vow) as part of the paad rice ritual which prohibits eating of aquatic life allows enough time for fish and shellfish species in the terraces to reproduce;
- Traditional rice varieties are continually planted. Although it requires six months from planting to harvest, it does not require inorganic fertilizers and is less susceptible to pests that commonly attack new rice varieties;
- Plant parts coming from the plants growing in the muyong are used as pesticide in the rice terraces;
- Rice grain harvesting is through detaching only the panicles. Rice straw and leaves are left and slightly buried in the paddies;
- There is a diversity of plant species maintained in the Muyong which provides for food, medicine, construction, pesticides and raw materials for making baskets and wood carvings;
- Trees and other plants are harvested in the Muyong only when needed. Plant parts such as twigs and leaves are left to decompose in the woodlots;
- Owners of Muyong undertake silvicultural practices such as pruning, thinning and cutting of vines that suppress the growth of plants thereby allowing better tree growth;
- The integration of banana, coffee, cacao, citrus, rattan, betel nut and other fruit bearing trees makes it one of the best indigenous agroforestry practice;
- Inheritance of the whole muyong and its non partitioning prevents area reduction and thus has made forest cover intact and enough to provide family needs and sustain water for irrigation as well;
- The imposition of planting calendar such as planting the rice almost within the same period distributes the pests population thereby reducing total pest damages. Likewise, the practice of harvesting also within a short period deprives the rats of food supply causing them to either starve or migrate; and
- The centuries old indigenous customs and beliefs related to natural resource use and management are major factors that deter over exploitation of land resources and biodiversity.



## Threats and Issues

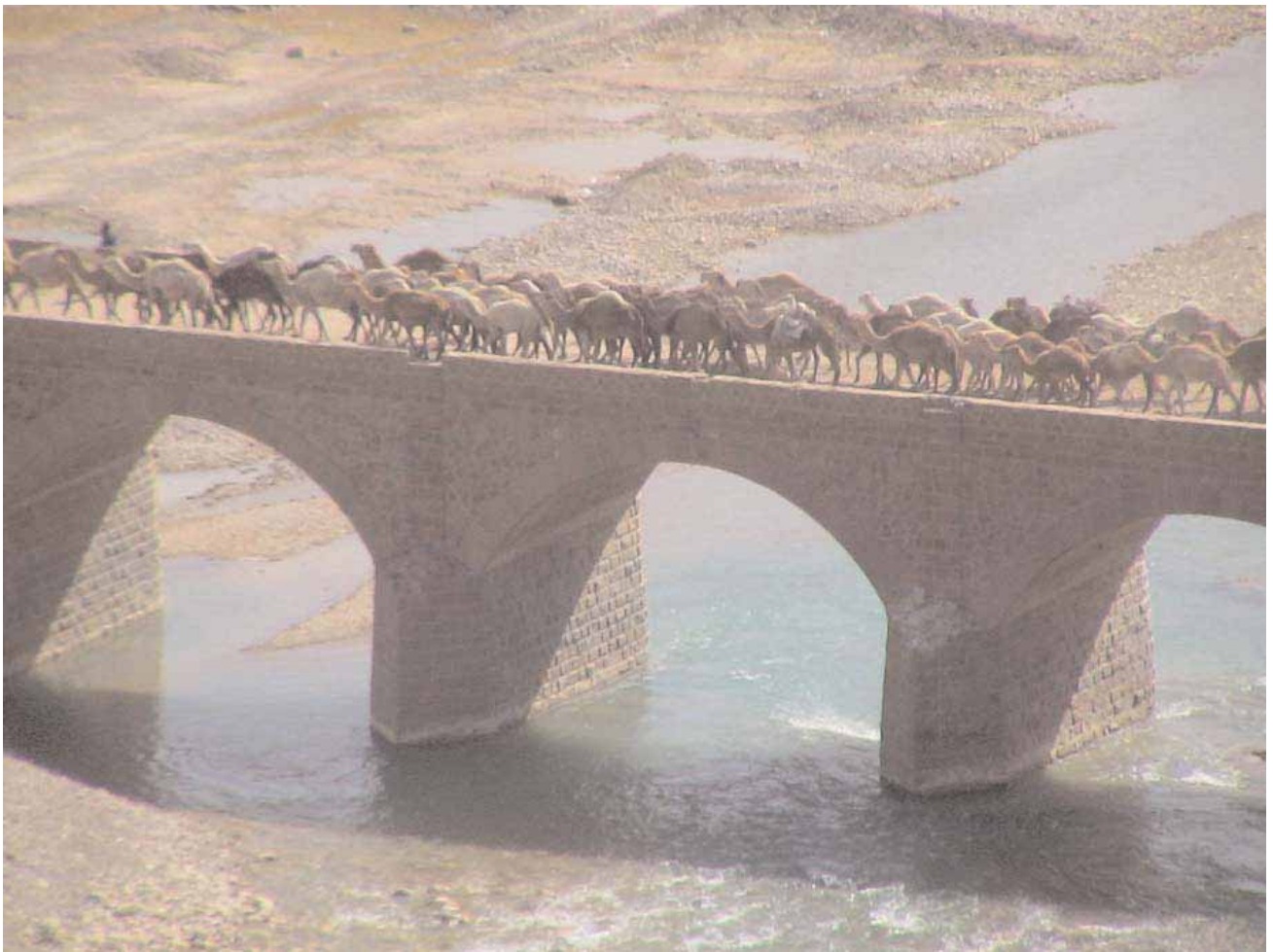
The cultural beliefs, customs and traditions of the Ifugaos related to the use of their natural resources under their harsh physical environment have been mainly the factors that allowed the rice terraces-muyong agroecosystem to remain a sustainable life support system of the Ifugaos. However, recent introduction of modern farming technologies, christianity, changes in local governance, access to education and modern means of living including transportation have started to impact on one of the oldest rice and forest farming system.

The introduction of high value vegetable crops which do not require year round inundation and are very dependent on inorganic fertilizer and pesticide inputs have contributed to the collapse of some terraces due to the absence of water in the terraces. Absence of inundation promoted the growth of large earthworms (*Polypheretima elongata*) that bore into the soil creating tunnels where water passes thereby weakening the terraces. Changes in cropping have also increased pests incidence especially rats (*Ratus tanezumi*).

With out migration by the young who look for better jobs, better education, and modern living, farm labor is becoming a problem. Thus, the mastery of traditional rice farming, terracing and maintenance and upkeep of muyongs is steadily being lost. The demand for raw materials in the wood carving industry also encouraged muyong owners to cut the bigger trees creating canopy gaps and reducing the water absorption of the watersheds. Evangelization among villagers has likewise discouraged many to disregard some of the customary rituals related to resource use and rice culture. Traditional socio-political structures and institutions such as the village work groups *ubbu* and *bad-dang*, the *tomonas* and *mumbakis* have lost their roles in the villages when the democratic processes required that local leaders be elected and school teachers, government technocrats and community development workers have been immersed into the communities. According to Medina (2003) the rice terraces are a creation of Ifugao culture. Any intervention that tends to alter the social organization that evolved the ifugao physical and social structures for thousands of years is the very threat to the disruption of the ifugao rice terraces-muyong agroecosystem.

## References

- Butic, M. and R. Ngidio. 2004. *Muyong Forest of Ifugao: Assisted Natural Regeneration in Traditional Forest Management*. Monograph. FAO RAPA. 6 pp.
- Dacawi, R. 1982. *The Ifugao Way of Forest Conservation*. Phil. Upland World1, 2: 14-15
- Hangdaan, N.B. 2000. *The Muyong System of the Ifugaos*. Unpublished Monograph. 9 pp.
- Klock, J. and M. Tindongan. 1999. *The Past and the Present. A Meeting of Forces for a Sustainable Future*. Forest, Trees and People Newsletter Issue 9. FTP Program Network
- Marquez, C.D. 2002. *Ridding Philippine Rice Terraces of Rats and Worms*. SciDev.Net
- Medina, C.R. 2003. *Understanding the Ifugao Rice Terraces*. St. Louis University. Cordillera Research and Development Foundation. Baguio City, Philippines
- Ngidlo, R. T. 1998. *Conserving Biodiversity: The Case of the Ifugao Farming System*. People, Earth and Culture. PCARRD. Los Baños, Laguna Philippines
- Rondolo, M. T. 1999. *The Changing Ifugao Woodlots: Implications for indigenous plant knowledge and biodiversity*. Ph.D. Thesis Australian National University.



## **Annex 1**

---

### **Agenda of the Forum**

# Agenda

---

## Tuesday 24 October

### International context of Agricultural Heritage Systems

Opening of the Forum: 9:00 a.m.  
Plenary Session - Iran Room (B 116)

Welcome speech by Mr. **Peter Kenmore**, Chair, FAO Interdepartmental Group on Biodiversity

Key Note Speaker: Dr. **Henk Kieft**, ETC International Group, The Netherlands: "Application of Quantum physics for a holistic approach to Agricultural Heritage Systems"

---

SESSION 1/ 9:30- 11.00  
PLENARY SESSION - IRAN ROOM (B 116)

### Globally Important Agricultural Heritage Systems: From concept to practice

*The first thematic session will be devoted to discussing the overview of the global GIAHS initiative, scientific underpinning of the agricultural heritage systems; significance and extent of the systems, and implication to development; awareness of dynamic conservation of biological diversity and cultural diversity, which generates enthusiasm to local communities.*

Chairperson: Mr. **Grégoire de Kalbermatten**, Deputy Executive Secretary of United Nations Convention to Combat Desertification (UNCCD)

### 9:30 GIAHS initiative: overview and status of pilot implementation

Mr. Parviz Koochafkan, Director, Rural Development Division, GIAHS Coordinator, FAO

### 9:45 A Scientific Conceptual Framework and Strategic Principles for the GIAHS Programme from a Social-Ecological Systems Perspective

Prof. Patricia Howard, Wageningen University, the Netherlands, and Dr. Raj Puri, University of Kent at Canterbury.

### 10.00 GIAHS and Farmers innovation

Prof. Miguel Altieri, University of Berkeley, California, USA

### 10:15 Local empowerment and poverty alleviation in GIAHS: Wageningen International

Mr. Arend Jan van Bodegom, Sr Advisor Biodiversity and Society-WI

### 10:30 SIPAM: local benefits derived from GIAHS pilot systems

Dr. Mario E. Tapia, GIAHS National Facilitator, Peru

10:45 Short summary by the Chair

11:00- 11:30 Coffee/tea break

---

SESSION 2/ 11:30-13.00  
PLENARY SESSION - IRAN ROOM (B 116)

### Mainstreaming GIAHS at national and international levels

*This session will discuss and evaluate synergies and interlinkages at local, national and international levels in the implementation of GIAHS within various multilateral environmental agreements. It will also pave way to discussion of new policy directions and regulatory framework needed for GIAHS, to mainstream at the international, national and local key sustainable development agenda.*

Chairperson: Dr. **Philip Mahler**, Senior Advisor, FAO

### 11.30 An examination of GIAHS in existing multi-lateral instruments

Prof. Stuart Haropp, University of Kent

### 11.45 The experience of the Commission on Genetic Resources for Food and Agriculture (CGRFA)

Prof. José Esquinas, Secretary of the CGRFA

### 12.00 The experience of UNESCO World Heritage Commission and Man and Biosphere Reserve Programmes

Mr. Philippe Pypaert, Head, Science and Environment, Regional Bureau for Science and Culture in Europe, UNESCO-UVO

### 12.15 GIAHS Philippines: Governance and Local Empowerment in the Environment and Natural Resources Sector

Ms. Analiza Rebuelta-Teh, DENR Asst Secretary and GEF OFF, Philippines

12.30 Short summary by the Chair

13:00- 14:30: Lunch break

**AFTERNOON SESSION: ANALIZING GIAHS IMPLEMENTATION**  
**14:30-17:00 : PARALLEL DISCUSSION SESSIONS**

**Discussion Group 1:**

Meeting Room: Iran Room – (B 116)

Scientific underpinning of Agricultural Heritage Concept

**Review of technical and methodological approaches of GIAHS**

Chair: Prof. **Miguel Altieri**, University of Berkeley, California, USA

Rapporteur: **Dr. Rajindra Puri**, University of Kent at Canterbury

**Discussion Group 2:**

Meeting Room: Pakistan Room- (A 127)

Review of pilot countries experiences supporting GIAHS dynamic conservation

The experiences of:

**Andean Agriculture – Peru**

Dr. Mario E. Tapia, ANPE-Slow Food and Ing. Alipio Canahua, CARE

**Chiloe Agriculture – Chile**

Mr. Carlos Venegas, Regional Director Centro de Educación y Tecnología, CET

**Rice-Fish Agriculture – China**

Prof. Qing Wen Min, Chinese Academy of Sciences

**Ifugao Rice Terraces – Philippines:**

Mr. Samuel Peñafiel, Regional Director, DENR-CAR, Philippines

**Oases of the Maghreb – Algeria, Morocco and Tunisia**

Mr. Nouredine Nasr, Bioversity International, Coordinator, Tunisia

Chair : Prof. **José Furtado**, Centre for Environmental Policy, Imperial College London

Rapporteur: Mr. **Luohui Liang**, UN University

**Wednesday, 25 October**

Partnership Building at International, National & Local Levels

---

**SESSION 3 9:00- 11:00**

**PLENARY SESSION (IRAN ROOM B-116)**

**GIAHS: Building Innovative Partnerships and Resources Mobilisation**

*This session will analyze existing partnerships around GIAHS and will look for new innovative alliances. It will review the interest and commitments of different institutions and stakeholders for conservation and sustain-*

*able management of GIAHS and their components e.g. biodiversity, indigenous knowledge, cultural diversity and livelihood systems. The session will also discuss the new Resource Allocation Framework (RAF) modalities of GEF and its implications for partnership building and resources mobilisation at international and national levels.*

Chairperson: Mr. **Jean Philippe Audinet**, Director, Policy Division, International Fund for Agricultural Development (IFAD)

**09:30 GEF Small Grant Programme**

Dr. Nick Remple, UNDP/GEF/SGP Deputy Global Manager (Programmes)

**09:45 The Christensen Fund**

Dr. Wolde Gossa Tadesse, The Christensen Fund

**10:00 Roman Forum**

Dr. M. Muthoo, Secretary General of Roman Forum

**10:15 NGO/IPGRI/WI: Implementation of the Oases of the Maghreb**

Mr. Nouredine Nasr, IPGRI (Biodiversity International) coordinator, Tunisia

**10:30 UN Permanent Forum on Indigenous Issues**

Ms. Vicky Corpuz, UN Permanent Forum on Indigenous Issues

10:45 Short summary by the Chair

11:00- 11:30: Coffee/tea break

---

**SESSION 4 / 11:30-13:00**

**PLENARY SESSION (IRAN ROOM B-116)**

**Empowering local communities through GIAHS**

*This session will illustrate how GIAHS contributes to promote good governance and empower local communities. It will also take stock of multistakeholder processes formulated by WI and tested in the Philippines and China. The session seek views of participants regarding issues on indigenous and traditional knowledge and systems and discuss the importance of innovative institutional arrangements at international national and local levels to empower local people for sustainable development and natural resources management.*

Chairperson: Prof. **Michael Stocking**, University of East Anglia, Norwich, UK, and Vice-Chair of Technical Advisory Panel of the, GEF

**11.30 Institutional mechanism in participating countries for dynamic conservation of GIAHS**

Dr. Frank van Schoubroeck, Wageningen International

**11.45 Recent Developments in Intellectual Property rights and indigenous knowledge**

Dr. Shakeel Bhatti, Head, Genetic Resources, Traditional Knowledge and Biotechnology Section, WIPO, Geneva, Switzerland

**12.00 China's GIAHS Conservation National Framework**

Prof. Qing Wen Min, Chinese Academy of Sciences

**12.15 GIAHS Chile: Country Governance and Local Empowerment Structure**

Mr. Carlos Venegas, Regional Director Centro de Educación y Tecnología, CET

**12.30 GIAHS Morocco: Endogenous water resources management practices in the Oases**

Prof. Jean Bedel, Ecole Nationale de Genie Rural des Eaux et Forêts (ENGREF)

12:45 Short summary by the Chair

13:00- 14:30: Lunch break

**AFTERNOON SESSION: ANALYSING GIAHS IMPLEMENTATION**

**14:30-16:30: PARALLEL DISCUSSION FORUMS**

**Discussion Group 3:**

Location: Pakistan Room (A 127)

**Creation of a globally, nationally and locally recognised "World Agricultural Heritage Category"**

Chair: Prof. **Stuart R. Harrop**, University of Kent

Rapporteur: Ms. **Sally Bunning**, Technical Officer, FAO

**Discussion Group 4:**

Location: Philippines Room (C277)

**Organization of multi-stakeholder management structure for GIAHS programme implementation**

Chair: Dr. **Ximena George-Nascimento**, GEF OFF, Chile

Rapporteur: Dr. **Frank van Schoubroeck**, Wageningen International

**CONCLUSIONS OF DISCUSSION GROUPS**

**16:30- 18:00**

**MEETING ROOM: PHILIPPINES ROOM (C277)**

Chairperson: Ms. **Cathrien De Pater**, Policy Advisor, Directorate of Knowledge and Department of Nature, Ministry of Agriculture, Nature and Food Quality, The Netherlands

Presentation of Summary Reports resulting from the four working groups by rapporteurs and open debate.

Outcomes expected:

- report of the Committee of Experts on the scientific underpinning of Agricultural Heritage Concept

- endorsed GIAHS plan and guidelines for creation and recognition of "World Agricultural Heritage Category"

- endorsed mandate at different implementation levels

- endorsed implementation / management protocol

18: 00 hrs: Wrap up of the Forum: Closing remarks by Parviz Koochafkan

**Thursday, 26 October**

**GIAHS in Practice**

7:00 to 19:30 hrs.

**One day Field trip to Amalfi Coast and Ravello, one of the GIAHS systems: the lemon gardens in the Italian southern peninsula Sorrentina-Amalfitana.**

The "lemon gardens" are an outstanding example of how an agricultural landscape is characterising a complete geographical area. Lemon pergolas, chestnut windbreaks, "pagliarelle" (terraces incorporated in containment walls) and narrow footpaths have been built, and preserved, over centuries to guarantee the conservation of local lemon varieties (*Citrus limonum* ssp.). Lemon varieties were exchanged for gold on Mediterranean ships in the sixteenth century, when their healing properties against scurvy were discovered. Being so profitable on the market the inhabitants of the peninsula invented ways to cultivate them in spite of the difficult terrain and environmental constraints. Adapted ecotypes of lemon have been cultivated mostly on small farms. By occupying even the steepest slopes, their presence has protected the territory and contributed to preserve the soil from hydrogeological instability. In addition, it has created a beautiful coastal landscape admired by voyagers of any time.

## **Annex 2**

---

### **Agenda Item for the Commission on Genetic Resources for Food and Agriculture**

## Agenda Item for the CGRFA

---

The following item is a summary of the output of discussion and comments from the participants for presentation to the CGRFA in order to:

### In order to:

*(A) Contribute to the fulfilment of previous decisions of the Commission, Decision III/1. of the Convention on Biological Diversity and contribute to achieving the Millennium Development Goals;*

*(B) Work towards meeting the needs for food security, food sovereignty and the alleviation of poverty of millions of people within rural communities;*

*(C) Preserve traditional systems that not only contribute to meeting these needs but also maintain a significant wealth of biological and agricultural diversity thereby providing a repository of genetic resources and ingenious practices and knowledge to assist human kind to meet its future requirements.*

*(D) And to recognise the link between agricultural and cultural heritage*

**The Commission On Genetic Resources For Food And Agriculture is asked to endorse the design of a policy measures and financial framework to implement the preservation, maintenance, protection and development of Globally Important Agricultural Heritage Systems (GIAHS)**

**The framework will deal with the following issues:**

- An expanded GIAHS definition emphasising the *dynamic, evolving and adaptive social-ecological systems* that constitute GIAHS.

- The establishment of GIAHS designation procedures that are sensitive to the requirements of communities operating GIAHS systems (GIAHS Communities) and accept that the final designation decision rests with the candidate GIAHS Community.

- The provision of means to secure the evolution and security of GIAHS and the related GIAHS Communities through the granting of appropriate rights in the landscapes in which GIAHS operates and the peripheral areas on which they depend.

- The involvement of GIAHS Communities as stakeholders in the management of lands and water that affect the GIAHS operations.

- The right of GIAHS Communities systems to determine the mode of operation of their systems and the manner in which those systems; their traditions, culture and heritage are managed and developed.

- The right of GIAHS Communities to regulate access to their traditional knowledge, homes, natural resources, lands, water and other domains.

- Mechanisms to secure the preservation and evolution of customary law regimes in GIAHS Communities.

- A mechanism for creating internationally agreed standards for labelling of GIAHS products.

- Appropriate linkages within UN FAO operations and with other institutions and conventions, in particular, WIPO, WTO TRIPS, CBD, CCD, CITES, RAMSAR, WHC, UNCCD, the UNESCO MAB programme.

- Provision for capacity building in GIAHS Communities

- The establishment of a Funding mechanism.

- Awareness raising component

- Capacity building of national governments

- Information and dissemination component (inventory, assessment/ monitoring)

- Impact assessment of policy measures, project/programmes in GIAHS communities

- National policy development (for items 12 and 13)

Stuart R. Harrop  
19 November 2006



## **Annex 3**

---

### **List of Participants**

## List of Participants

---

### GIAHS Pilot Systems

*Chile- Chiloe Agriculture*

**Ms. Ximena George-Nascimento**  
Punto Focal Operacional GEF - Chile  
Email: [xgeorge-nascimento@conama.cl](mailto:xgeorge-nascimento@conama.cl)

**Mr Carlos Venegas**  
Regional Director, Centro de Educacion  
y Tecnologia, CET  
Email: [cetchiloe@gmail.com](mailto:cetchiloe@gmail.com)

*China – Rice Fish Agriculture*

**Prof. QingWen Min**  
Professor, Institute of Geographic Sciences  
and Natural Resources Research  
Chinese Academy of Sciences  
Beijing,  
P.R. China  
Email: [minqw@igsrr.ac.cn](mailto:minqw@igsrr.ac.cn)

**Mr. Minger Ye**  
Vice-Governor  
Qingtian County  
Zhejiang Province  
33 Hecheng Zhong Lu  
Qingtian County  
P.R. China  
E-mail: [qtweb@lishui.gov.cn](mailto:qtweb@lishui.gov.cn)  
Mr. Lijun Zhao  
Program Officer  
Ministry of Agriculture  
No. 11 Nong Zhan Guan Nan Li  
Beijing, 100026  
P.R. China  
Email: [zhaolijun@agri.gov.cn](mailto:zhaolijun@agri.gov.cn)  
*Oases of the Maghreb*

**Mr. Atef Dhahri**  
Association pour la Sauvegarde de la Médina de  
Gafsa, Gafsa, Tunisia  
E-mail: [asm.gafsa@planet.tn](mailto:asm.gafsa@planet.tn)

**Mr. Moha Haddouch**  
Head of Agricultural Production, ORMVAO P.O. Box

29 Ouarzazate Morocco  
Email: [Moha\\_h@yahoo.fr](mailto:Moha_h@yahoo.fr)

**Dr. Nouredine Nasr**  
IPGRI Tunisie  
c/o Ministère de l'Agriculture et des  
Ressources Hydrauliques DGPCQPA  
30 Rue Alain Savary, 1002 Tunis. Tunisie.  
Email: [n.nasr@cgiar.org](mailto:n.nasr@cgiar.org)

*Philippines - Ifugao Rice Terraces*

**Ms. Analiza Rebuelta-Teh**  
GEF Operational Focal Point  
and Assistant Secretary, Department of Environment  
and Natural Resources  
Quezon City, Philippines  
Email: [analiza@denr.gov.ph](mailto:analiza@denr.gov.ph)

**Mr. Samuel Peñafiel**  
Regional Executive Director, DENR  
Cordillera Auonomous Region  
Baguio City, Philippines  
Email: [denr\\_baguio@yahoo.com.ph](mailto:denr_baguio@yahoo.com.ph)

*Peru – Andean Agriculture*

**Mr. Alipio Canahua Murillo**  
Coordinator CARE - CONAM –SIPAM  
Av. Simon Bolivar No. 2283  
Puno, Peru  
Email: [alipiocanahua@gmail.com](mailto:alipiocanahua@gmail.com)

**Mr. Mario Tapia**  
Calle Reni, 205  
San Boria 41 Lima, Peru  
Email: [mariotapia@amauta.rcp.net.pe](mailto:mariotapia@amauta.rcp.net.pe)

### UN Systems

**Mr. Jean-Philippe Audinet**  
Director, Policy Division  
International Fund for Agricultural Development  
(IFAD)  
Via del Serafico, 107  
00142 Rome, Italy  
Email: [j.audinet@ifad.org](mailto:j.audinet@ifad.org)

**Dr. Shakeel Bhatti**

Head, Genetic Resources, Traditional Knowledge and Biotechnology Section  
WIPO, Geneva, Switzerland  
Email: [shakeel.bhatti@wipo.int](mailto:shakeel.bhatti@wipo.int)

**Ms. Victoria Tauli-Corpuz**

Chairperson, UNPFII  
1 Roman Ayson Road  
Baguio City, Philippines  
Email : [vicky@tebtebba.org](mailto:vicky@tebtebba.org);  
[vtcorpuz2006@yahoo.com](mailto:vtcorpuz2006@yahoo.com)

**Ms. Adriana Dinu**

Regional Technical Advisor, Biodiversity  
UNDP/GEF, Europe and the CIS  
Bratislava Regional Centre  
Grosslingova 35, 81109 Bratislava,  
Slovak Republic  
Email: [adriana.dinu@undp.org](mailto:adriana.dinu@undp.org)

**Dr. Ehsan Dullo**

Senior Scientist  
International Plant Genetic Resources Institute  
(IPGRI) Via dei Tre Denari, 472/a  
00057 Maccarese, Fiumicino, Italy  
Email: [E.Dullo@cgiar.org](mailto:E.Dullo@cgiar.org)

**Dr. Pablo Eyzaguirre**

Senior Scientist, Diversity for Livelihoods Programme,  
International Plant Genetic Resources Institute  
(IPGRI), Rome, Italy  
Email: [p.eyzaguirre@cgiar.org](mailto:p.eyzaguirre@cgiar.org)

**Mr. Grégoire de Kalbermatten**

United Nations Convention to Combat Desertification  
(UNCCD), Germany  
Deputy Executive Secretary  
Hermann-Ehlerstrasse, 10 53113 Bonn  
Email: [gdekalmatten@unccd.int](mailto:gdekalmatten@unccd.int)

**Mr. Luohui Liang**

Academic Programme Officer  
Environment and Sustainable Development  
United Nations University  
53-70, Jingu mae 5-chome, Shibuya-ku, Tokyo 150-  
8925 Japan  
Email: [liang@hq.unu.edu](mailto:liang@hq.unu.edu)

**Mr. Alessandro Meschinelli**

Research Officer  
International Fund for Agricultural Development

(IFAD)

Via del Serafico, 107 Rome 00142, Italy  
Email: [a.meschinelli@ifad.org](mailto:a.meschinelli@ifad.org)

**Mr. Philipp Pypaert**

Head a.i. Science and Environment, Regional bureau  
for Science and Culture in Europe, UNESCO Office in  
Venice, Italy  
Email: [p.pypaert@unesco.org](mailto:p.pypaert@unesco.org)

**Dr. Nicholas Remple**

UNDP/GEF/SGP Deputy Global Manager  
(Programmes)  
Street/P.O. Box  
304 E 45<sup>th</sup> St  
New York, NY 10017  
Email: [nick.remples@undp.org](mailto:nick.remples@undp.org)

**Mr. Gamini Wijesuriya**

Project Manager (Sites Unit)  
ICCROM  
Via di San Michele 13  
Rome 00153, Italy  
E-mail: [gw@iccrom.org](mailto:gw@iccrom.org)

**Partner Institutions**

**Ms. Cathrien De Pater**

Senior Policy Advisor  
Directorate of Knowledge and Department of Nature  
Ministry of Agriculture, Nature and Food Quality,  
Postbus 482,  
6710 BL Ede, The Netherlands  
Email: [c.h.de.pater@minlnv.nl](mailto:c.h.de.pater@minlnv.nl)

**Mr. Arend Jan van Bodegom**

Sr. Advisor Biodiversity and Society, Wagenigen  
International  
Agricultural Centre, Department of Sustainable  
Management of Natural Resources, P.O. Box 88  
Wageningen 6700 AA, The Netherlands  
E-mail: [arendjan.vanbodegom@wur.nl](mailto:arendjan.vanbodegom@wur.nl)

**Mr. Maharaj Muthoo**

President, Roman Forum  
Largo dell' Article, 20-00144  
Rome, Italy  
Email: [romanforum1@virgilio.it](mailto:romanforum1@virgilio.it)

**Dr. Frank HJ van Schoubroeck**

Visiting Fellow - Institutional Development for NRM  
Wageningen International

P.O. Box 88, 6700 AA Wageningen  
The Netherlands  
Tel. No.: +31- 654365515  
Email: [Frank.vanSchoubroeck@wur.nl](mailto:Frank.vanSchoubroeck@wur.nl)  
**Dr. Wolde Gossa Tadesse**  
Program Officer  
The African Rift Valley (Ethiopia)  
The Christensen Fund  
394 University Avenue  
Palo Alto, CA 94301, USA  
Email: [wolde@christensenfund.org](mailto:wolde@christensenfund.org)

### Academes/Universities

**Prof. Miguel A Altieri**  
Professor of Agroecology  
Division of Insect Biology  
University of California, Berkeley  
201 Wellman Hall-3112  
Berkeley, California 94720  
Email: [agroeco3@nature.berkeley.edu](mailto:agroeco3@nature.berkeley.edu)

**Dr. Gero Benckiser**  
Lecturer in Soil Microbiology  
Institute for Microbiology  
Justus Liebig University  
Giessen, Germany  
Email: [Gero.Benckiser@agr.uni-giessen.de](mailto:Gero.Benckiser@agr.uni-giessen.de)

**Prof. Jose I. dos R Furtado**  
BSc, PhD, FRSA, FWAAS, Hon. Professor (Mauritius)  
Visiting Professor, Imperial College London  
Email : [jose.furtado@imperial.ac.uk](mailto:jose.furtado@imperial.ac.uk)

**Prof. Stuart R. Harrop**  
Durrell Institute of Conservation and Ecology,  
Department of Anthropology  
University of kent  
Canterbury,  
Kent CT2 7NS  
Email: [S.R.Harrop@kent.ac.uk](mailto:S.R.Harrop@kent.ac.uk)

**Prof. Patricia Howard**  
Gender and Biocultural Diversity Studies  
Dept. of Social Sciences, Wageningen University  
Dept. of Social Sciences P.O. Box 8130  
6700 EW Wageningen, Netherlands  
Email: [Patricia.Howard@wur.nl](mailto:Patricia.Howard@wur.nl)

**Mr. Rajindra K. Puri**  
Lecturer in Environmental Anthropology  
Anthropology Department

University of Kent at Canterbury  
Canterbury, Kent CT2 7NS  
United Kingdom  
Email: [R.K.Puri@kent.ac.uk](mailto:R.K.Puri@kent.ac.uk)

**Dr. Laurajane Smith**  
Senior Lecturer in Heritage Studies  
Department of Archaeology  
University of York  
The King's Manor  
York, YO1 7EP  
United Kingdom  
Email: [ls18@york.ac.uk](mailto:ls18@york.ac.uk)

**Dr. Reinhard Christian R. Vogl**  
Ao. Univ. Prof. Associate Professor  
Institute of Organic Farming  
Department for Sustainable Agricultural  
SystemsBOKU-University of Natural Resources and  
Applied Life Sciences  
Gregor Mendel Strasse 33, A-1180 Wien/Vienna  
Email: [christian.vogl@boku.ac.at](mailto:christian.vogl@boku.ac.at)

**Dr. Dario Novellino**  
Research Fellow  
Department of Anthropology  
University of Kent, Canterbury, Kent CT2 7NR, United  
Kingdom  
Email: [darionovellino@alice.it](mailto:darionovellino@alice.it)

**Prof. Michael Stocking**  
University of East Anglia, Norwich, UK and Vice-Chair  
of Technical Advisory Panel of the GEF  
Email: [m.stocking@uea.ac.uk](mailto:m.stocking@uea.ac.uk)

### Institutes/International Organizations

**Dr. Franz Gatzweiler**  
Senior Researcher  
Center for Development Research (ZEF Bonn),  
Walter-Flex-Str 3  
53113 Bonn, Germany  
E-mail: [fgatz@uni-bonn.de](mailto:fgatz@uni-bonn.de)

**Mr. Henk Kieft**  
ETC International Group  
Kastanjelaan 5, 3830 AB Leusden, The Netherlands  
Email: [h.kieft@etcnl.nl](mailto:h.kieft@etcnl.nl) ; [info@etcnl.nl](mailto:info@etcnl.nl)

**Mr. Hans Krens**  
Executive Board, Club of Budapest  
Rijksstraatweg 35  
6574AB Ubbergen, Netherlands

E-Mail: [h.krens@sustainableinnovations.org](mailto:h.krens@sustainableinnovations.org)

**Dr. Grigori Lazarev**

Consultant, Plan Bleu  
(PNUD/PAM), 245 Viale della Tecnica  
00144 Rome  
Email : [g.lazarev@agora.it](mailto:g.lazarev@agora.it)

**Ms. Khadija Catherine Razavi**

Executive Director, Commission on Environmental,  
Economic and Social Policy (CEESP-IUCN)  
CENESTA, 142 Azerbaijan Avenue, 13169 Tehran,  
Iran  
Email: [khadija@cenesta.org](mailto:khadija@cenesta.org)

**Dr. Pandi Zdruli**

Project Manager, MEDCOASTLAND Thematic  
Network  
CIHEAM-Mediterranean Agronomic Institute of Bari  
Via Ceglie 9 70010 Valenzano (BA), Italy  
Email: [pandi@iamb.it](mailto:pandi@iamb.it)

**Embassy Representations**

**Mr. Noel De Luna**

Deputy Permanent Representative  
Embassy of the Republic of the Philippines  
Viale delle Medaglie d'Oro, 112  
00136 Rome  
Email: [philrepfao@libero.it](mailto:philrepfao@libero.it)

**Ms. Hasanthi Dissanayake**

Alternate Permanent Representative  
Embassy of the Democratic Socialist Republic of Sri  
Lanka  
Via Adige 2, Rome 00198, Italy  
Email: [saranyahu@hotmail.com](mailto:saranyahu@hotmail.com)

**H.E. Rajiv DOGRA**

Permanent Representative  
Permanent Representation of India to UN Agencies in  
Rome  
via XX Settembre, 5  
00187 Rome, Italy  
Email: [agri.wing@indianembassy.it](mailto:agri.wing@indianembassy.it)

**Mr. Tetsuya Kawashima**

First Secretary, Embassy of Japan  
Via Quintino Sella, 60  
00187 Rome, Italy  
Email: [fao@embjpn.it](mailto:fao@embjpn.it)

**M. Kiala Kia Mateva**

Conseiller  
Ambassade de la République d'Angola  
Via Filippo Bernardini, 21  
00165 Rome, Italy  
Email : [kiala2002@libero.it](mailto:kiala2002@libero.it)

**Mr. R. Parasuram**

Minister (Agriculture)  
Embassy of India, Rome  
Email: [agri.wing@indianembassy.it](mailto:agri.wing@indianembassy.it)

**Mr. Hubert Poffet**

Conseiller, Représentation Permanente de la Suisse  
auprès de la FAO, Viale Aventino, 89  
00153 Rome, Italy  
Email : [vertretung@roa.rep.admin.ch](mailto:vertretung@roa.rep.admin.ch)

**H.E. Javad Tavakolian**

Ambassador  
Permanent Representative  
Permanent Mission of the Islamic Republic of Iran to  
the U.N. Agencies in Rome  
Via Aventina 8, Rome 00153, Italy  
Email: [javadtavakolian@yahoo.com](mailto:javadtavakolian@yahoo.com)

**FAO Staff Members/ Consultants/Volunteers**

**Mr. Jean Bonnal**

Rural Development Officer, SDAR  
Sustainable Development Department  
Email: [jean.Bonnal@fao.org](mailto:jean.Bonnal@fao.org)

**Ms. Genevieve Braun**

Rural Development Officer, SDAR  
Sustainable Development Department  
Email: [Genevieve.Braun@fao.org](mailto:Genevieve.Braun@fao.org)

**Ms. Jennie Dey De Pryck**

Chief, SDAR  
Sustainable Development Department  
Email: [Jennie.DeyDePryck@fao.org](mailto:Jennie.DeyDePryck@fao.org)

**Mr. José Esquinas**

Secretary of the Commission of Plant and  
Genetic Resources for Food and Agriculture  
Agriculture Department  
Email: [Jose.Esquinas@fao.org](mailto:Jose.Esquinas@fao.org)

**Mr. Thomas Hofer**

Forestry Officer  
Sustainable Mountain Development  
Forest Conservation Service

Forestry Department  
Email: [Thomas.Hofer@fao.org](mailto:Thomas.Hofer@fao.org)

**Mr. Peter Kenmore**  
Chair of FAO Interdepartmental Working Group on Biodiversity  
Agriculture Department  
Email: [Peter.Kenmore@fao.org](mailto:Peter.Kenmore@fao.org)

**Mr. Parviz Koochafkan**  
Director, Rural Development Division and GIAHS Coordinator  
Sustainable Development Department  
Email: [Parviz.Koochafkan@fao.org](mailto:Parviz.Koochafkan@fao.org)

**Mr. Stephane Jost**  
Liaison Officer, SDAR  
Sustainable Development Department  
Email: [Stephane.Jost@fao.org](mailto:Stephane.Jost@fao.org)

**Ms. Dominique Legros**  
SARD programme, SDAR  
Sustainable Development Department  
Email: [Dominique.Legros@fao.org](mailto:Dominique.Legros@fao.org)

**Mr. Paul Mathieu**  
Senior Officer, SDAA  
Sustainable Development Department  
Email: [Paul.Mathieu@fao.org](mailto:Paul.Mathieu@fao.org)

**Mr. Thomas Price**  
Senior Programme Officer, OFA  
Office of World Food Summit Follow-up and Alliances  
Email: [Thomas.Price@fao.org](mailto:Thomas.Price@fao.org)

**Mr. Jean Bedel**  
Consultant, SDA  
Sustainable Development Department  
Email: [jean.bedel@wanadoo.fr](mailto:jean.bedel@wanadoo.fr)

**Mr. David Boerma**  
Consultant, AGAP  
Agriculture Department  
Email: [David.Boerma@fao.org](mailto:David.Boerma@fao.org)

**Ms. Mary Jane de la Cruz**  
Consultant, SDA  
Sustainable Development Department  
Email: [Maryjane.DelaCruz@fao.org](mailto:Maryjane.DelaCruz@fao.org)

**Ms. Angela Hilmi**  
Agronomist, Secretariat of the Commission on Genetic Resources for Food and Agriculture,

Agriculture Department  
Email: [Angela.Hilmi@fao.org](mailto:Angela.Hilmi@fao.org)

**Mr. Philippe Mahler**  
Consultant, SDA  
Sustainable Development Department  
Email: [MahlerPJ@aol.com](mailto:MahlerPJ@aol.com)

**Ms. Nuria FelipeSoria**  
Consultant, SDA  
Sustainable Development Department  
Email: [Nuria.Felipesoria@fao.org](mailto:Nuria.Felipesoria@fao.org)

**Ms. Cordula Mertens**  
Volunteer, SDA  
Sustainable Development Department  
Email: [Cordula.Mertens@gmx.de](mailto:Cordula.Mertens@gmx.de)

**Ms. Soraya Thabet**  
Volunteer, SDA  
Sustainable Development Department  
Email: [Soraya.Thabet@fao.org](mailto:Soraya.Thabet@fao.org)

**Journalist/Press:**

**Mr. Luca Gaballo**  
RAI News 24  
Producer Programme "Atlante"  
Rome  
Email: [l.gaballo@rai.it](mailto:l.gaballo@rai.it)